

MODERN TEACHING
PRACTICE AND
TECHNIQUE

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BY

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PREFACE

THIS book is intended for beginners in the practice of teaching. In preparing it I have had particularly in view the conditions which, as far as it is at present possible to judge, will obtain in the post-War educational world, and the needs of those men and women who will be trained under the Ministry of Education's Emergency Scheme as well as of those students entering upon normal courses of training.

The book embodies the experience of very considerable periods of my professional life spent in training teachers as well as instructors for the Services. It contains many recommendations which have been tested in practice and which my own students have found of assistance to them in their practical work. I trust that other teacher students will also find it of considerable help to them in getting the best out of their practice in schools.

It will be evident to the reader that this book is in no way a complete guide to "teaching made easy" or anything of that nature. I have always held the opinion, and it has been strengthened in the course of my experience, that if teaching practice is to serve a useful purpose it must be intelligently directed in the light of an appreciative understanding of what one is actually seeking to do with one's pupils in the educational activities which are involved. I have for this reason included in the first three chapters a general survey of some of the more important features of children's learning processes so that the beginner will at least have a general idea of these when he commences his practical work, while his

reading of the later chapters should be facilitated by the rational background which these earlier chapters are intended to supply. This survey is by no means complete and, as part of his professional education, the student will need to supplement it by careful study of other textbooks and by practical observation of children at work and at play. It will serve, however, to provide him with a background against which he can begin his practical teaching in school with some understanding of the real nature of the problems involved, together with an insight into the character of the functions which he, as a teacher, is called upon to exercise. He can then base his practice upon sound principles, develop the appropriate skills in the knowledge of their proper functions, and fill in the details as his studies and practical experience develop.

My main purpose has been to present to the reader a view of his professional work incorporating those features of modern educational thought which are of greatest significance to him in his approach to practical teaching. I have, therefore, drawn very freely upon the works of other writers and I wish to acknowledge my indebtedness for the many quotations and references the sources of which are quoted in the text. I am particularly grateful to my friends Dr. E. H. Hughes and Dr. A. G. Hughes for their generous offer of any of the material in their book, *Learning and Teaching* (Longmans), which I might find useful. As the reader will note, I have made very considerable use of this work and numerous references and quotations are included.

I am also greatly indebted to Professor Sir T. Percy Nunn, Professor Cyril Burt, Professor C. Spearman, and Professor H. R. Hamley for the help and inspiration which I received

from their teaching and guidance of my own studies as a student of the London Day Training College and of the University of London Institute of Education. I have endeavoured in the text to acknowledge any quotations which I have made from their publications, but I realise that I have acquired many ideas as a result of their teaching and writings which I have probably used without due acknowledgment and I am indeed very grateful to them.

I would also like to express my gratitude to my former and present students at Isleworth for what they have taught me and are still teaching me about teacher training, to the many teachers in the schools of Heston and Isleworth and of the adjoining Boroughs whom I have been privileged to see at work and with whom I have been able to discuss many teaching problems, to my present and former colleagues at Borough Road College, and to those members of the Inspectorate with whom I have over a period of years had so many helpful discussions upon technical and other aspects of the training of teachers.

Finally, I wish to place on record my very sincere thanks to my former student and present colleague, Mr. D. J. Johnston, B.A., for his careful reading of the proofs and for his very acute and helpful criticisms, and to my wife who has contributed many useful suggestions, read my manuscript and proofs, and generally assisted me in every way in this work.

J. H. P.

ISLEWORTH, October, 1944.

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CONTENTS

	PAGE
PREFACE	V
CHAPTER	
I. THE ART OF TEACHING	I
The Endowment of Children	7
Experience and Learning	15
Limitations of Development	17
Some Characteristics of Modern Teaching	21
II. HOW CHILDREN LEARN	32
A. Physical Development	32
Body and Mind	32
Children's Physical Endowment	35
How Reflex Actions are Modified	39
How Children Develop Physical Skills	42
III. HOW CHILDREN LEARN— <i>Contd.</i>	46
B. Mental Development	46
I The Senses and the Mind	46
II How Children's Minds Develop	
A. Percepts	50
B. Concepts	52
C. Intelligence and Understanding	55
D. Mind and Language	60
E. Interest and Mental Development	62
F. Permanence of Learning	69
Conclusion	76
IV. INITIAL TEACHING PROBLEMS	77
I The Learners	78
II What to Teach	82
Class Syllabuses	82
School Curricula	84
III Types of Teaching and General Method	91
Observation	91
Activities and Experiences	93
General Method	95

CHAPTER	PAGE
V. THE ACQUISITION OF SKILLS	99
The General Method of Teaching Skills	105
VI. THE DEVELOPMENT OF MUSCULAR SKILLS	116
Teaching Objectives	116
Teaching Technique	117
Preparation	118
Presentation	120
A. Appreciation	120
The Teacher as Performer	121
Demonstration and Explanation	122
B. Performance	124
Supervision and Guidance	126
Practice	128
Tempo and Rhythm	129
Progress in Learning Skills	131
Further Practical Considerations	134
Accidents in Schools and Responsibilities of Teachers	137
Conclusion	138
VII. THE DEVELOPMENT OF KNOWLEDGE	140
General Method	148
VIII. THE DEVELOPMENT OF KNOWLEDGE— <i>Contd.</i>	156
Some Common Techniques and Teaching Aids	156
A. Oral Teaching	156
B. <u>The Use of Visual Aids.</u>	165
C. Developing Knowledge Through Study	173
D. Questioning	185
Conclusion	190
IX. THE DEVELOPMENT OF TASTE	191
Environmental Influences	194
Creative Activities	197
The Appreciation Lesson	200
(a) Selection of Content.	203
(b) The Teacher's Own Preparation	208
(c) Conduct of the Lesson	210

CONTENTS

xi

CHAPTER	PAGE
X. INDIVIDUAL, GROUP, AND CLASS TEACHING METHODS	221
XI. THE TEACHER'S PREPARATION	231
Preparing Courses of Lessons	235
Detailed Preparation	239
Written Notes of Lessons	245
XII. CHARACTER DEVELOPMENT AND DISCIPLINE	253
Moral Instruction	257
Discipline and Order	268
Class Management	271
XIII. THE TEACHER	278
The Teacher's Personality	279
Self-criticism	288
Conclusion	291
INDEX	295

CHAPTER I

THE ART OF TEACHING

THE late Dr. William H. Reed used to tell a characteristic story of Elgar the composer. As a young violinist Dr. Reed was present at a Promenade Concert rehearsal of the composer's "Diarmid and Grania." At the conclusion of the work, Dr. Reed slipped from his place in the orchestra and followed Elgar up the stairs of the Queen's Hall. Very timidly he asked whether Mr. Elgar gave lessons in harmony and counterpoint. "My dear boy," replied Elgar, "I don't know anything about them!" The implications are obvious. As a great creative artist Elgar professed ignorance of the ways and means, the mere machinery of his art. Very probably this highly distinguished composer had achieved his masterpiece without any conscious attention to such things as rules and methods of procedure. Whether in his earlier days he had been conscious of them, or had ever made a study of the technical details of composition, we are not told, though one suspects that he was not as ignorant of them as he claimed, by the almost mischievous genius which he occasionally displayed in his works for flouting some of the conventions. One thing is certain however, like all great artists at the height of their creativity, Elgar's main pre-occupation when composing was with creative expression rather than with mere technique.

As with the musician, so with all other artists worthy of the name. In their final and fully developed forms they show at most but an unconscious use of the machinery of their art. In their greatest moments they may be completely oblivious of it, while in rare cases they may even invent completely new techniques to serve their creative purposes. At the outset of this book, which is mainly concerned with the technique of teaching, it should be made clear therefore that any technique is merely a means to an

end and not an end in itself. It is relative and subordinate always to the creative forces which find expression in the art, whether this be music, painting, surgery, teaching or any other. It is part of the artist's equipment which will serve him in the execution of the purpose of his art. The mere perfection of technique will not therefore in itself produce the artist. Much more is demanded of him in the way of natural and acquired accomplishments.

A fortunate few, perhaps, need give little or no attention to the development of their technique. They seem to know almost intuitively what to do and how to do it. By some heaven-sent gifts, and apparently without the expenditure of precious energy upon the lesser things in their art, they go straight to the forefront of eminence in their performance or production. Many of the "born" teachers are of this fortunate type, and the history of our profession shows outstanding examples of great teachers, without professional training and without interest in professional studies as we now know them, who have had the capacity for understanding human nature, for handling it most effectively, and inspiring the work of other less favoured members of the profession. The great majority, however, of men and women who enter the teaching profession do not find themselves so fortunately placed. Faced with the problem of teaching children, they have to give very serious consideration, among other things, to the question of ways and means. No entrants to the profession are entirely ignorant of these at the outset, since all have been to school at some time or other. When faced therefore with the problem of teaching something in the classroom, it is usually possible to dig up some half-forgotten memory of schooldays and to make a passable imitative repetition of what someone else did in comparable circumstances. It is not, however, quite the thing for a professional man or woman unquestioningly to do unto others what has at some time or other been done to him or to her. Traditional types of teaching which may quite possibly be outmoded are often perpetuated by this procedure. How else could we account for some of the things which go on in some schools to-day?

Another possibility for developing one's professional skill is

to rely upon "hit or miss" tactics to begin with, and to modify them as practice and experience are acquired. A certain amount of this kind of development is desirable, but excessive reliance upon it without professional study, may lead to a rather slow rate of progress. In the course of this development precious possibilities are being missed by the suffering pupils. One of the main aims of a professional study is to short circuit, or abbreviate in some way, this wasteful development of teaching efficiency at the expense of the children. It is therefore to those entrants who, conscious of their responsibilities, wish to make an effective practical application of teaching methods, through an intelligent understanding of the principles involved in those methods, that this book is addressed.

It will be noticed that teaching has been referred to as an "art." There may be some who are disposed to query this. The writer does not propose to go at length into the very difficult and controversial discussion of a definition of the term "art." Listeners to the radio, even to the popular and untechnical talks, will realise that authorities are disposed to quarrel bitterly upon this matter, while a cursory survey of the literature on the subject reveals great differences in viewpoints among the writers. The dictionary, the plain man's standby in such matters is not very helpful. If the reader consults a few dictionaries on the meaning of the term "art" he will find a bewildering collection of synonyms which, in its variety, reflects the uncertainty present in most minds as to its exact meaning. There is, however, one common factor suggested in all discussions by authorities and among the dictionary meanings. This is the implication that, in some way or other, "art" is intimately concerned with the purposive human manipulation, modification, or arrest of certain processes which, without that human intervention, would be different. Shakespeare appears to hit the mark when, after Romeo has been led to forget his lovesick depression for a brief period and indulge in a good-humoured piece of "back-chat" with Mercutio, the latter remarks, "Now art thou what thou art, by Art as well as Nature." Romeo has, according to Mercutio, taken himself in hand and, if only for a short period,

he has by human effort ("Art") done something to himself, possessed as he is by a "great *natural*. . . this drivelling love." Here then we have the essential conditions for the existence of an art, viz. when, by the intelligent action of a human being, the ordinary course of events is in some way deliberately modified. In the sense implied here teaching is certainly an art. It is in fact a subsidiary of the wider art of education. This itself is best defined as the deliberate control of influences which are designed to modify or direct the growth and development of human beings. Some form of education is going on wherever we find attempts to influence the actions, feelings and thoughts of human beings.

We have stated above that technique in any art is but the means for achieving the purpose of that art. It is appropriate therefore, before investigating the technique of teaching, that we should have some clear ideas upon what we are aiming to do when we teach. What then is the purpose of the art of education? Here a cautious approach is advised since schools and colleges are not the only educational institutions in our communities. Every influence deliberately brought to bear upon growing and developing human beings, e.g. that of the state, church, school, youth club, family, radio, press, advertiser or cinema, is within the compass of our definition, since each of these institutions, according to its lights, seeks to modify or develop in some ways those who come under its influence. Complete agreement among all the aims of these educational influences is hardly to be expected since each has its own particular function to fulfil. There is, however, among the non-commercial of these institutions in our own community to-day, a growing measure of agreement as to their purposes, while some of those with intense commercial interests show a decreasing tendency to sound discordant notes. The increasingly co-operative attitudes of church and state, parent and school, school and radio, are but a few examples of the growing consciousness in modern times of the inter-relation of all streams of community life. There may be quarrels as to ways and means, sometimes accompanied by much speaking of minds, but in the main, however short of their objective they may in practice fall, the democratic ideal is

at least the professed goal of the majority of the institutions concerned.

What then, in educational terms, is the democratic ideal? Expressed quite simply it is that within the framework of communal life each member of the community shall have the means of developing to the full his own individual potentialities. Teaching is the front-line job in education, and its purpose is clearly indicated in the Board of Education Handbook of Suggestions for Teachers as follows: "The aim of education should be to develop to the full the potentialities of every child at school, in accord always with the general good of the community of which he is a member." The statement is clear and unequivocal, indicating the whole purpose of teaching, and it is to this end that the technique of the art must be directed. It should be noted, however, that the foregoing statement of the educational ideal is based upon a creed, a belief arising from a particular view of life, and from philosophical considerations which it is not our purpose in this work to investigate. This creed has been challenged in the past, and it will probably be challenged again in the future. It implies a particular view of the essential relationship between the individual man and the community in which he lives. Education, since it concerns itself with living and with the preparation of human beings for living, cannot even be thought about apart from the social order of which it forms a pillar. As this social order changes so will educational thought and practice of necessity be correspondingly influenced. The search for a formula for education applicable universally irrespective of this consideration has been given up with the realisation that education is correlative to the ideals of the particular community for which it is designed. Even within the framework therefore of comparable democracies we must expect to find developments of educational systems and practices differing in some respects one from another, from time to time, and from place to place, according to the conditions of life in those democracies. The common factor however of all truly democratic systems of education is the emphasis which they place upon the development of the individualities of the pupils and the provision

of educational facilities which accord with their "different ages, abilities and aptitudes."¹

Students beginning a professional study are quite often disposed to ask why they should be bothered with problems of philosophy. "Cannot we get straight on to the job of teaching what we must? What difference can it make, say, in our teaching of the mother tongue, whether the state is totalitarian or democratic?" These and similar questions arise quite naturally in the earlier stages. The answer is that a study of technique is of very little value if it merely gives the student a knowledge of ways and means to do something without enabling him to develop a clear idea of the purpose of that "something." A mere technician, as we have already noted, is not necessarily an artist. In practice, moreover, the fundamental philosophical considerations indicated here are insistent and inescapable. Whenever any "subject" is being taught in school the immediate purpose of the teaching is conditional upon the wider purpose of doing any teaching of children at all. The very organisation of the relevant activities, the relationship of teacher to pupils, the selection of material, the attitudes and values which the teacher seeks to develop, the use to which the knowledge is put when the pupils have acquired it, etc., are all relative to the teacher's view upon the purpose of educating those children. This will accordingly affect not only the techniques which the teacher employs, but also the way in which he applies them. Techniques are means towards ends and as such they are not directing forces in themselves. Ways and means are, moreover, most intimately affected by the ends which they serve. It is in the light of these facts that the teacher can best approach his study of teaching methods. Studied against a sound philosophical background, these methods will serve to give the teacher an indication of his goal, to suggest a suitable approach, and provide a yardstick by which he can measure his achievement in any teaching which he undertakes. Without this background he will be very much "in the air."

¹ Cf. Clause 8 of the 1944 Education Act.

In the pursuit of any art a knowledge of the material with which one works is an essential requirement. If the aim of teaching is to develop the potentialities of human beings we must at least know what these potentialities are and how they can be developed. How else can we know whether the educational aim expressed above is merely a piece of "wishful thinking" or a goal possible of actual achievement? Modern psychology, though perhaps as a science it may be as yet merely in the "cat's whisker" stage, can give us considerable help in this direction. Practical observation of, and familiarity with children, are, however, most essential requirements if the teacher is to reap full benefit from the study. Modern teaching practice itself is a developed product. Prominent parts have been played in this development by psychological contributions, practical experience of an empirical nature, tradition and philosophical influences. It is not the purpose of this present work to trace out the whole of this interesting development. It will suffice to begin with if our attention is directed to some of the more important characteristics of children's endowment and development which affect our immediate problem, viz. the technique of teaching which accords with our expressed aim of education.

THE ENDOWMENT OF CHILDREN

A human being, like all the other higher animals, starts life as a tiny single cell which is itself the union of two other cells. The female ovum is less than 0.008 of an inch in diameter yet, microscopic as this is, the complementary male generative cell is several hundred thousandths smaller. Incredibly small as the fertilised ovum is, it contains within it all the latent qualities of the organism's development, i.e. its potentialities. From the very start the patterns determining species, characteristics and tendencies are there, fixed by ancestry in this microscopic unit of the stream of life. Such characters as hair colour, tallness and shortness, and cleverness or stupidity are contained in the original cell; every trait in fact which the individual will later exhibit is

present in latent form. We term the sum total of these potentialities "heredity," a factor with which education must inevitably reckon.

Subsequent pre-natal growth is determined by this heredity and the surroundings in which the organism grows. Developing according to the pattern of the human species and in conformity with its own individual qualities, the single cell becomes by stages colonies of cells which later differentiate out to form the tissues and organs of the embryo, the whole growth becoming the single human organism with the following noteworthy characteristics. It is, in the pre-natal stage, completely dependent upon the parent for sustenance and shelter, yet its growth is its own and is directed in such a way that there is a progressive preparation for independence of that parent. At the end of about 270 days the organism ends its parasite-like existence and comes into the world to begin a physically separate life of its own. The newborn baby has taken what is probably the most important step he will ever take on life's journey. He brings with him into the world the potentialities which he has inherited from his parents and his more remote ancestors: the characteristics of his species, inborn patterns of behaviour, the capacity for growing and developing his powers, together with any characteristics which he may have acquired in his pre-natal existence.¹ He is, in his immaturity, still dependent for the satisfaction of his appetites and for his general care upon the parent generation; he is, however, endowed with a life urge which presses onwards ever towards independence of that generation through the fruition of his latent powers.

Looked at casually our very young baby does not appear to have many potentialities, in spite of those which his relatives may declare that they can see in him. His main interests in life seem to be confined to sleeping and feeding. He does not appear,

¹ Little is known of this possibility. Authorities differ on this point. Clinical observation shows, for example, that parents of "nervy" dispositions tend to have "nervy" children. How much of this "nerviness" is due to inherited pre-dispositions, how much is acquired through pre-natal influences, how much is to be attributed to imitation of parents, etc., there appears at present to be little possibility of ascertaining.

moreover, to begin with, to have much of an urge to get about the world. His bodily machinery, however, shows in miniature form all the characteristics of the human machinery which enables adults to perform the intricate movements and highly skilled manipulations of which they are capable. The baby can make simple fundamental movements of his limbs such as grasping with his hands and stretching out his arms and legs. By exactly the same physiological processes as those which operate in older children, the worn-out tissues of his body are repaired and growth of new ones is brought about. Very quickly in the course of this development his movements increase in range as he kicks, stretches, grasps things, and later carries them to his mouth, and at the same time the exercise which these movements provide develops his control of his physical machinery. There are indications also, very early in his life, that he has a mind of sorts. He certainly possesses the nervous machinery which is the prerequisite of all mental life, viz. a brain and a spinal cord. We can, however, know but little of "mind" of a newly born baby. It may be just a dim kind of awareness of the "big, blooming, buzzing confusion" which is all around him, but whatever it is the rudimentary characteristics of a mind are there. For example, it is remarkably like mental activity as we understand it when, in response to the urge of his appetites, he begins to display not only considerable ingenuity in attracting attention to himself, but also marked powers of discrimination among the foodstuffs provided. We very shortly will discover from observation that he also possesses a temperament. Sudden noises and falling will set up in him behaviour which is characteristic of fear, while clothing which restricts his movements, particularly those of his head, will occasion a display of what looks preciously like anger.

Observation therefore reveals that a young baby possesses in simple form the capacities for mental, temperamental and physical expression of the "will to live." If, moreover, we were to continue to keep our infant under observation we should find that, if all goes well, these rudimentary forms of activity develop as he grows and other well-defined characteristics appear in the course of his

development. Alongside of an increasing intimacy with the things of his little world he exhibits an ever growing control and independence of it. His interests develop, his powers of discrimination among objects and persons in his environment improve, his possibilities of physical activity increase in range and complexity, and his likes and dislikes, the products of his temperamental make-up, become well marked and differentiated. He learns to control his bodily machinery so as to sit up, stand up, crawl about, and later to walk, run and jump. He expresses himself in gesture and speech. He develops attachments for relatives, animals, toys, etc., while showing in all probability some well-marked antipathies. We must assume that these common characteristics of children's development are the products of inborn factors. How else can we account for the remarkable basic similarity of the stages of development in children reared in different environments? These factors in the endowment of children are what makes development possible, i.e. they enable children to be taught. They are inherited patterns of behaviour, vehicles so to speak, or "conduction units" of the life urge.

Psychologists hesitate to use the term "instincts" when speaking of the inborn patterns of behaviour which children possess, except for those mechanisms which serve them in carrying out the ordinary everyday business of life, e.g. feeding, walking, running and the like. Instinct in the animal world is, as a rule, a fixed and comparatively unchangeable mechanism, whereas many of the patterns of behaviour with which children are born are so easily and rapidly modified in the course of their lives that they often become unrecognisable very early on in their development. For example, we have referred above to the arousal of the emotion of fear in a very young baby. Observation shows that in his very early life only the two stimuli which we have mentioned will arouse that emotion, viz. loud noises and falling. His fear responses, too, are very limited and well defined, being restricted to whimpering or crying and a few spasmodic movements of legs and arms. Older children, however, tend to express fear in the presence of many other things, and their responses may take forms

of wide range, variety and complexity. It seems that as children grow older they develop in respect of the things and situations which arouse their emotions and in the ways in which they can deal with the situations involved. However, while admitting that modifiability is a characteristic of the inborn patterns of behaviour which children inherit, the basic patterns as they appear in untutored form in young children are remarkably like instincts. They do not have to be learned, they appear in their due course in all children, and they take a common form. They are an essential part of all children's endowment and are, moreover, of vital concern to the teacher whatever one may call them.

A list of the main "instinctive" tendencies is given on pages 12 and 13. Many of these, it will be noted, are not obvious in the young baby but their universal exhibition by all children, as we have pointed out, leads us to rank them as part of the potentiality of children to be reckoned with in all teaching. Some of the listed tendencies are comparatively narrowly patterned in the ways in which they operate, i.e. the situations, emotions, and tendencies to action are of a specific nature. The last two in the list, viz. "play" and "imitation," are less specialised and much more general in their modes of expression. Almost any situation, if circumstances are otherwise favourable, is likely to evoke children's play activities and their imitative propensities. These when functioning take limitless forms which may involve any or all of the special modes of behaviour. In play the super-abundant creative energies which children possess find very ready expression. They love exploring the unfamiliar, experimenting with their environment, giving free rein to their power of make-believe and trying out their prentice hands upon their surroundings. The means at their disposal for doing all this are the instinctive patterns of behaviour which they possess. The important thing to note, however, is that when they play, these modes of behaviour, i.e. of thinking, feeling and doing, are modified and developed during the course of that play. They get to know more about their surroundings and to be able to control them better. The players themselves, moreover, find satisfactory outlets for urges

NATURAL MODES OF BEHAVIOUR CHARACTERISTIC OF CHILDREN¹

The following instinctive tendencies should not be thought of as separate one from another, but rather as specialised manifestations of a child's general life-activity. Behaviour is the expression of one great "tendency," the will-to-live; it is not the sum of a number of separate instincts.

<i>Tendency, i.e. mode of behaviour to which children are prone.</i>	<i>Object or situation to which children are ready to attend.</i>	<i>Emotion which children experience.</i>	<i>Action which children perform.</i>
To avoid danger	Sudden noises; falling	Fear	Withdrawal; flight; immobility
To investigate the unknown	Unfamiliar things; hidden things	Curiosity; wonder	Approach; investigation; exploration
To get rid of obnoxious things	Slimy things; unpleasant tastes and smells	Disgust	Recoil; spitting out
To seek company	Other people	Loneliness which, when relieved, gives place to satisfaction	Movement towards other people
To wander	Places remote from usual surroundings	Wanderlust	Roaming; wandering
To assert themselves	Self	Elation; pride	Various actions designed to assert independence, importance, superiority

which are not normally satisfied by the ordinary everyday business of the life of energetic, young, healthy beings whose actual sphere of accomplishments is a relatively restricted one. Not only do children like to use their energies upon new experiences, however, but they also delight in repeating again and again accomplishments which they have already mastered. Many children's games are extremely repetitive in nature and, in the everyday business of living, they seem to like to settle into a routine which is at once familiar and reassuring. Here we see a striking parallel with physical growth. It seems that nature at times overreaches herself; children spring up and overgrow; there follows a slowing up and a period of filling out, a making good as it were of the advances already made. The repetitive character of some children's activities seems to be very similar to these physical consolidations. In the repetition of the familiar the children themselves learn to master accomplishments only half learned, and in so doing to establish their physical and mental processes more firmly as a jumping-off basis for further advances.

The imitative tendency is one which children and adults appear to share alike. We all, young and old, tend to feel, do, and think as others do. We tend to "feel" the religious spirit pervading a church congregation or the excitement of a political meeting. We tend to fall in with the general pace of the crowd going in our direction, e.g. hurrying to business, or sauntering for pleasure. We also tend to accept unquestioningly the verdicts of authorities upon problems falling within their own particular spheres, and few are immune from the influence of ideas accepted generally by the mass of our fellows. Children are particularly prone to this kind of influence. Unconsciously they take over the thoughts, actions, and feelings of others and make them their own. Persons whom they hold in high regard, through personal ties of affection or by reason of their capabilities in directions much desired by the youthful aspirants, have a very great influence upon the young through the power of suggestion. Children are also very susceptible to the fashions in thought, action and sentiments current in their own little community. They, moreover,

learn a great deal and make big strides in mastering their environment by the conscious imitation of others. By deliberately copying others who can do things which they themselves would very much like to do, they acquire many accomplishments.

The foregoing very brief sketch, admittedly incomplete in many respects, indicates some of the more important features of the endowment of children with which the teacher must work.

To sum up we may say :—

- (i) that a child's endowment involves inherited capacities for mental, physical and temperamental growth ;
- (ii) that it includes behaviour patterns of a specific and general nature which are not narrowly or rigidly determined, but which are in the main extremely modifiable in the course of his development ; and
- (iii) that the will to live, working through these patterns, tends ever to an increase in his control of his environment and a development of his independence.

EXPERIENCE AND LEARNING

Little has so far been mentioned as to the ways in which a child's endowment is used to develop his familiarity with and control of his world. These will be of prime concern to the teacher. For the moment it will be sufficient if we get a general view of this process of development, i.e. of the way in which children learn.

The following case is taken from the writer's notebook and shows clearly a very elementary form of learning. S_1 and S_2 represent the stimuli, i.e. what the parent did to the baby. R_1 , R_2 , and R_3 represent the responses which the child made, i.e. what he did about it himself.

Photographing the Baby

Conditions.—Baby (about 11 months old) sitting upon the sand at the seaside. Father about to take photograph of child but mother intervenes and suggests a photograph of baby "crowned" with a rubber quoits ring.

<i>Stimuli</i>	<i>Responses</i>
1. Ring placed on baby's head (S_1)	Baby whimpers (R_1) and moves head to and fro (R_2) (Ring slips off head and slowly baby resumes his playing with handfuls of sand.)
2. S_1 again.	R_2 , but more vigorously—and hand slightly raised to head. (Ring falls.)
3. S_1 again.	R_2 , less vigorously—hand touches the ring. (Ring falls.)
4. S_1 again.	R_2 , very slightly—but seizes ring with hand and pulls it off (R_3).
5. S_1 again.	R_3 , quickly and vigorously.
6. S_1 again.	R_3 , very quickly and vigorously.
7. S_1 again.	R_3 , practically instantaneously.
8. Etc., S_1 for a number of times.	R_3 , on each occasion.
Finally a handkerchief is substituted for quoits ring (S_2).	R_3 , as before.

Simple as this example is, it shows all the essential characteristics of what is known as learning by *experience*. To begin with it must be assumed that there existed in the baby a desire, or "pre-disposition" as it is called, to get rid of the constraining influence of a "crown" upon his head, otherwise he would have had no motive for doing anything about S_1 . We have already seen on page 9 that this is a common feature of babies' inheritance. It probably derives, like other inherited patterns, from some biological device, deeply seated in our evolutionary history and having a survival value. Here it provided the driving force for the babe to do something to get rid of the "crown." What he did can be seen in the notes. By trial and experiment (R_1 , R_2 , and R_3) he discovered the way to satisfy his needs, practised it (R_3), and became very skilled in removing not only the crown but the alternative head cover which was tried (S_2). He learnt as we say by experience, i.e. by what he felt, did, and possibly "thought" about a particular situation at the promptings of certain natural urges.

Now it is obvious that the learning of older children far transcends in range and complexity this simple type which we have here examined but, at whatever level learning is carried out, it is basically of the same nature. It is the result of experience obtained either directly at first hand as in this case, or indirectly as, for

example, when we get it second hand from books, from other people, or from sources such as films and "still" pictures.

It is important to note that experience, whether it be first or second hand, involves some sort of activity, mental, emotional, or physical, on the part of the one which is experiencing. Children, and adults for that matter, modify their behaviour patterns and learn, not so much by what is presented to them in any situation, but rather by what they do, feel, and think in response to that situation just as the baby did in the example given. If they are listening to an exposition, reading a book, or doing a practical experiment, to quote only a few examples of the many possible educational activities, the most significant factors in the actual process of learning are *their* thoughts, *their* feelings and *their* actions. The speech of the teacher, the words of the book, and the apparatus used in the experiment, are merely means towards ends. These are the materials upon which the children bring to bear their physical and mental powers which are the cutting edges of the tools with which they attack that material to make it their own, in part or in whole, according to their felt needs. The result of their activity will be an essential part of the experience. According to its nature so will the tools themselves become modified, a fact of great significance in education.

LIMITATIONS OF DEVELOPMENT

The writer well remembers an occasion many years ago when his class was examined in arithmetic by an inspector. At the post-mortem it was revealed that while about 30 per cent. of the pupils had done the five sums which were set quite correctly, nearly 35 per cent. of the class had distinguished themselves by getting absolutely nothing correct in their scripts. The inspector in an "it hurts-me-more-than-it-hurts-you" tone remarked to the somewhat abashed young teacher, "This is serious! What these boys (the 'fivers') have done, those (the 'zeros') can do. They're all boys! See that they do it or you'll lose your job."¹ He was quite sincere in his expression of what was even

¹ He mercifully made no further visits during the writer's sojourn at that school.

then an outmoded idea not shared by the bulk of his colleagues, viz. that of the eighteenth-century Helvétius, *L'Éducation peut tout*. This belief dies hard, and in comparatively recent times it has become the fashion in certain quarters to place the main blame for any shortcomings which particular youths may exhibit upon their educational defects. On the other hand, we are all, as schoolmasters, perhaps inclined to over-estimate our own contributions in cases of former students of ours who achieve distinction.

The modern view of the relationship between endowment and education is a compromise between the over-optimistic view of Helvétius, which attributes omnipotence to education, and that of the "defeatist" Galtonian school who are equally emphatic in decrying its possibilities. According to the latter school, one's development is fixed irretrievably by one's heredity—the "divinity which shapes our ends," and education is impotent in the face of the inexorable "facts of heredity." "You cannot get a silk purse from a sow's ear, nor grapes from thistles," is a favourite expression of the protagonists of this school. No one of course would be foolish enough to try to do either of these things in practice, but it might be pointed out in passing that careful nurture may produce a good sow's ear in so far as it is part of a very healthy sow, and very beautiful thistles can be produced by suitable cultivation. This illustrates the modern belief which is supported by observational evidence that, while heredity certainly does determine the potentialities which children bring into the world, nurture, i.e. their upbringing, including their education, determines which of these potentialities are realised, and also the level to which they attain. There will, therefore, be limits imposed by nature upon what the art of teaching can achieve with particular pupils. The practical difficulty which the inexperienced teacher is often up against is that of sorting out how much of any of the failures which he may have is due to nature, and how much is due to his own shortcomings or to other influences which he may not be in a position to control. One thing which he will quickly realise, however, is that even in a carefully graded group or class of pupils there will be significant differences in the natural abilities

of the individual children whom he teaches. Let us examine these briefly.

Physical differences among children of any age group are most obvious at the first inspection; some are sturdy, others less robust; some are tall, others short; some are quick at physical and manual skills, others slower and possibly quite clumsy, and so on.

Intellectually one finds, even in schools where children are grouped by ability, that marked differences are usually present among the children of any group. Some pupils, naturally quicker "in the uptake" than others, seem to grasp ideas and develop them more readily than their slower fellows. The experiences which they have, though apparently the same as those of the rest of the children, have a greater and often a more permanent effect upon them. Teachers have had to reckon with this matter of individual differences in children's mental equipment for generations. Long before the advent of objective mental measurements and tests, they have made classifications of their pupils in respect of their "intelligence," "general mental ability," "teachability," or whatever one chooses to call it. Nature is not strictly impartial in her distribution of this gift, any more than she is in her dispensation of any other human qualities. This fact has a most important effect upon every teacher's work.

Children's capacities for learning depend not only upon their general mental ability but also upon other factors such as linguistic ones, ability to deal with symbols, arithmetical and mechanical abilities. These special abilities are, as it were, the vehicles of the general intelligence of the pupils, and they need not necessarily be of equal relative potential in the same person, while they will show very marked differences in quality from one individual to another. In the course of development these special abilities make their weight felt more and more as time goes on, and they present very important problems for the teacher. These are possibly greater than those presented by differences in his pupils' "general intelligence," for it is to these special abilities that our attention is mainly directed in many school activities.

Teachers who teach mixed classes of girls and boys will notice sex differences not only on the physical but also on the mental side of their pupils' equipment. Age for age, however, the average general mental abilities of the sexes are equal and neither sex can claim any superiority. When it comes to the special abilities we find that the girls have a superiority in language factors, e.g. in reading ability; the mechanical ability of boys is definitely superior to that of the girls; the girls score in matters of sensory discrimination; and arithmetical abilities tend to be higher in the boys.

It is well at this stage to draw attention to a rather too common belief among a minority of teachers that because a child is "no good with his head" he ought, therefore, to be "good with his hands," since "he is bound to be good at something or other." While it is true that practical work is probably the best medium of experience for mentally dull boys and girls, this is not, as we shall later see, because of the assumption stated here. This is confounded by observation, which indicates that children who are good at handwork tend to be comparatively good at composition, literature, mathematics and the like, all of which make high demands upon mental powers.

There is a further item of children's endowment of which our knowledge at present is decidedly incomplete but which nevertheless must be reckoned with when considering the limitations of education. This is the emotional make-up of children. From this is derived, in the main, the driving forces of their learning processes, the motivation of all their activities. It determines largely their likes and dislikes, their attitudes to persons, things, and situations, and the spirit in which they deal with experiences. That native temperament is capable of very considerable modification by educational influence is an uncontested fact. Whether there are limitations imposed by nature upon this development through the inherited make-up of individuals, apart from the obvious sex differences, is sometimes disputed, but the weight of opinion is on the side of natural limitations. While, therefore, it is universally admitted that education cannot, in the absence of the essential natural mental and physical abilities, produce the scientific

genius, nor the international footballer, it is not so commonly agreed that poets, saints, and such like people are born and not made.

We have in this section considered mental, physical and emotional life as three separate things. They are, however, most intimately inter-related one with another, and are only different aspects of the one thing, viz. the organically and functionally unified life of the child. It is a mistake to look upon any child as possessing a body to which is merely added mental and spiritual powers. For the sake of convenience the student can think of these separately, but his technique, as we shall later see, must pay regard to the fact that the intimate inter-relationship to which we have referred is a governing factor in that child's existence and development. No education of his body, no modifications of physical endowment can take place without a correlative modification of the non-physical side, i.e. of his mental and emotional life. There is one school of thought which holds that the converse of this statement is true. The evidence, however, for this is not very conclusive, but there is evidence in plenty that the right kind of mental development can aid a child's physical control of his environment and enrich his powers of physical expression.

SOME CHARACTERISTICS OF MODERN TEACHING

We are now in a position to deal with some of the chief characteristics of modern teaching which arise from considerations which have been made in this chapter. They are selected here as being of prime importance for beginners who would base their practice of the art of teaching upon intelligent appreciation and understanding of well-founded principles.

According to the view taken in this chapter the human organism is not something with which the teacher can do just as he will, to turn out a kind of workshop product according to a pre-determined blue print. The teacher's architectural functions are strictly limited by the fact that a child is a living being with a potential of his own containing within itself its own characteristic

qualities. He shares with others of his species certain common characteristics, such as the capacities for mental, physical, and emotional development, but these are in terms of his own nature. He is, moreover, a centre of energy seeking outlets, a life force operating through inherited patterns of behaviour, many of which are of an extremely modifiable nature, a force, moreover, which urges him ever to greater independence or self-sufficiency through increasing familiarity with and control of his environment. These last become his through experience, i.e. by his active participation in events which have meaning and significance for him.

The foregoing is the picture which we have endeavoured to draw in outline in the preceding pages. It follows, therefore, that a "natural" education, as opposed to one which is "unnatural" and, in the writer's opinion, not in accordance with the ideal of education embodied in the democratic state, will be one which accords with the child's own nature. The "child centred" education, about which one reads so much these days, means this and nothing else. Education and teaching must fit a child, and be in accordance with his particular needs and individual capacities. The reverse process in which children are made to fit into an educational mould has no place in modern education. This figure reminds us of an old idea rejected by modern thought, viz. that of Addison, who wrote : "What sculpture is to the block of marble, education is to the human soul." The modern view makes of education a more co-operative affair than that which arises when the sculptor uses his mallet and chisel upon a block of marble. The latter has its own qualities certainly, but it merely reacts at the will of the sculptor and takes on the shape which he determines. Modern education places greatest emphasis not upon the mere reaction of the pupils as inanimate physical objects, but upon their responses, the active elements in their natures which enable them to participate in vital experiences. It seeks to utilise and direct children's energies in the service of their own development. It further demands a respect for children's individual qualities and natures, and for their rights to their own characteristic types of development within the framework of social requirements.

The education of a child in accordance "with the general good of the community of which he is a member" is not a negation of what has been put forward above. It need not in fact impose undue or unnatural restrictions upon his individual development, since the endowment of all normal children includes very powerful social impulses deriving from their inherited patterns of behaviour (see p. 12). These are in fact an essential part of the data of education, inborn potentialities awaiting development through experience. Unrestricted cultivation of egotistic self-seeking impulses is not a feature of normal modern education and, according to the view taken here, it is not a natural process. A child needs to learn to square his ways with those of his fellows, and it is in his nature so to do. He must become "fit to live, and fit to live with." Only by reaching this level can he be said to have developed to the full his potentialities.

In recent times there has been less respect paid to the informational content of education, i.e. to the acquisition of a store of factual knowledge, than was formerly the rule in our parents' and grandparents' school-days. Development of a child's potentialities has been rightly interpreted to mean not so much the fostering of a voracious appetite for the facts and items of information which were at one time the main dishes in the educational dietary, but rather the cultivation of the pupil's understanding, of his interests, of his attitudes, and of his general capacity for acquiring control of all his physical and mental powers by carefully tended growth. This movement has perhaps overstepped itself at times in practice. It lays itself open to a certain amount of "woolliness" in interpretation, and this has resulted, in some cases, in a failure to emphasise with proper regard the essential nature of certain informational content in education. Ignorance of these essentials is not a virtue. Children need to acquire an accurate knowledge of readily accessible material, such as the spelling of words, number relationships, geographical, historical, and scientific facts, before they can even begin to enter intelligently and effectively into the ordinary affairs of individual and social life. On the other hand, alongside of the failure to

recognise this requirement, there has been the regrettable influence of certain qualifying and competitive examinations in the opposite direction. Some children's real education has been, and is being restricted by an excessive concentration upon the traditional need for regurgitating within limited periods of time, half assimilated, and often ill-digested matter, in order to gain a requisite number of marks in an examination. All too easily it is assumed that what is implicit in a form of words is explicit to the writer of those words, and fortunate is the youth who is able to enter some examinations possessed of the products of a good verbal memory and an absorptive mental equipment. Examinations, however, have shown in recent years, as a result of a rising public consciousness of their defects, a marked tendency towards reform. There are indications that some of them may, in the very near future, be "reformed" out of existence altogether. This may be the way to ease the growth-restricting burdens of pupils and release the energies of pupils and teachers for more worthy purposes. On the other hand, it may not.

With the decay in the stress upon the informational aspects of education to which we have referred, one finds with less frequency the one-time common tendency to consider the art of teaching as that of filling pupils with knowledge just as one might fill bottles from a running tap. In practice this did not ever work out quite as our figure suggests, for the bottles had a way of popping their corks in their own mouths, so to speak, while they took a bit of a rest, and they also seemed to take a perverse delight in developing leaks lower down. Modern teaching takes a more liberal view of its function than that indicated here. It stresses not the pouring in of knowledge but the pupil's own contribution to the learning process, and it seeks to obtain his co-operation and active participation in the work in hand. The Consultative Committee of the Board of Education reports, "The curriculum is to be thought of in terms of activity and experience rather than of knowledge to be acquired and facts to be stored." The view of human nature and development given in this chapter is in strict accordance with this principle. The curriculum is the course of study pursued in

any particular institution, "study" being used in its widest sense. "Subjects" as such are not the main interest of the teacher when he is teaching. In the "child centred" education he seeks not to teach English, science, numbers, etc., to his pupils but, through the media of their activities and experiences in these and related "subjects," to develop their interests, their attitudes, their understanding and their intelligent control of their environment. In other words, the teacher's interest is centred in the children and upon their personal development, the curriculum with its "subjects," etc., being a means towards those ends.

The writer has found the foregoing one of the most difficult ideas for beginners in teaching to appreciate. Such beginners are usually persons with a very great respect for "subjects," holding their own studies in high esteem, and rightly so. For many of them these studies, great traditions of human culture, have become ends worth pursuing for their own sakes. It is hard to try to realise these studies in a new setting and, with all the regard for them which one has developed, to relegate them to the position of means towards ends. Failure to appreciate this, however, often makes teachers the greatest enemies of the things they love most. It frequently leads to faulty grading of work through selection of matter based upon the teacher's enthusiasms rather than upon the pupil's needs and capacities. If the children's experience is to be vital it must fall within the compass of the particular stage of childhood for which it is selected so that it will possess reality and meaning. When grading is not made with skill and with an understanding of children, antipathies often arise when just the opposite sentiments are desired. It will therefore be an important part of the young teacher's professional preparation for him to re-orientate his attitude towards his own knowledge, and to think of its availability for use in the teaching process in terms of the purpose and spirit which we have indicated here.

There is a danger that the reader may think the reference to subjects as means towards ends in schools may indicate that little regard is to be paid to what we teach and that the selection of matter is of minor importance. This is not so. Selection of

matter is, according to the thesis of this chapter, the selection of experiences which are to be used in the development of the children, and it is therefore of prime concern for the teacher. It was at one time believed that education was a matter of exercising the faculties of the child's mind, a kind of mental gymnastics in which subjects were given for study on the grounds of their power to develop those separate faculties, such as reasoning, memory, perception and the like, much in the same way as physical exercises will develop the musculature of the body. The intrinsic value, therefore, of the matter studied was of little concern. As one writer put it: "It doesn't matter much what the children learn, as long as it's disagreeable enough." Scientific observation and research have shown that the notion of separate faculties of mind, trainable by such methods, is somewhat fallacious. Even casual observation of one's acquaintances will reveal, for example, that an excellent memory for historical, geographical, mathematical or scientific facts does not necessarily go with a good memory for names, or faces, or appointments, etc. Experimental work has shown, too, that the spread of the effects of training in any particular activity or subject is restricted and relative largely to factors other than purely mental ones. We cannot, therefore, present any activity to our pupils merely on the score that it will be good for their minds as a matter of discipline. That subjects and studies do have disciplinary values is incontestable, but these do not arise from mere exercises of a formal character.

Regard must be paid, therefore, in the selection of teaching matter, to the value of the content of what is selected. The key to this problem for the teacher is to be found in what has already been laid down in this chapter. Development is, as we have seen, largely a matter of the interaction of a child's natural impulses and the environment in which he finds himself, that is, through his experiences. It is the teacher's function to select the content of these experiences from those subjects and activities which are of vital concern to that child. Learning is a matter of living and preparing for living, and there is accordingly really only one subject, "Living" and all it implies. The selection of matter

to be used will, therefore, be made by the teacher in accordance with the children's needs and capacities as they are at the particular stage of development with which he is dealing. "A child has a right to finality as regards its compulsory lessons," writes G. B. Shaw in his preface "Parents and Children." By this, Shaw, who always had an abhorrence of the idea of children being "chased by Learning, cane in hand," wishes to point out the fallacy of always looking upon any stage of development merely as a preparation for the succeeding stage. In the belief, therefore, that the fullest possible life in any particular stage is the best preparation for the next one, Shaw claims the child's right to a sense of having achieved something in the full knowledge of the purpose of what he is required to do and of what good it will do him here and now, rather than to be fobbed off with tales of the value which it is to be to him later in life. The modern teacher acknowledges this right and, while paying due regard to the function of the school as the curator of culture, i.e. of the great traditions of human thought, tends in an ever-increasing way to bring his pupils into close touch with those aspects of modern life which are of concern to them in accordance with their felt needs and their particular stage of development.

The foregoing may appear to the beginner to have rather a theoretical flavour. His or her own memories of school-days may not perhaps serve to present a picture which is much like that drawn here. Yet, nevertheless, the outline which has been drawn bears the marks, not only of theoretical contributions to the study of education, but also of practical contributions from front-line educational workers. It does in fact owe much to many schools of thought and draws upon many practical educational experiments. It rests upon an eclectic approach, a typically English attempt to bring a number of different opinions within the compass of one practical philosophy. The difficulty is likely to be that when the reader first goes into a school he may not find it in operation. He may in fact find many practices which run counter to it. Educational practice is a growth which has been going on for a long period, which is even now proceeding and which is likely

to continue for all time. Like all such developments it contains within itself contributions from different layers in its evolutionary history, conservative and creative elements co-existing without any apparent disharmony.¹ Education will, therefore, tend to show the characteristics of progress and conservation with different emphasis from time to time and from place to place. Very rarely, however, will one find a modern school completely hidebound to traditional procedure. In whole or in part the observer will find some attempts to modernise, as witness the almost commonplace method of organisation of classes in ability "streams" and the ever-increasing use made of practical activities, films, broadcasting, dramatic work, school societies, visits and journeys, laboratories, libraries, etc. These are all in some measure an acceptance of the modern outlook in teaching.

Earlier in this chapter we characterised teaching as an art because it was concerned with bringing about modifications in the growth and development of the pupils. The reader may begin to wonder, since we have been led to stress so emphatically the part to be played by the children themselves in this process, where the teacher as the artist comes into the picture at all. He may look with something like envy upon fellow artists such as the musician, the painter, the sculptor and the poet, who can work their will, for good or ill, upon their materials and claim their productions as their own works. Not so with the teacher, however, for this privilege has been taken from him by the very nature of his art. If children are to grow according to their own natures he cannot claim these as his. In this respect teaching is almost unique as an art since, while other artists such as musicians and painters can express themselves in their works, the teacher's creativity must be expressed in terms of his pupils' development, which should not bear the hall-mark or stamp of his deliberate design. This does not mean, however, that his part is a minor or

¹ The same kind of apparently illogical co-existence is observable in human beings, e.g. in the survival of superstitious beliefs. In an exaggerated form this has been noted in the case of some negro mechanics who combine a highly skilled up-to-date knowledge of aero engines with an implicit faith in the "rabbit's paw" and "Lady Luck."

an unimportant one, rather does it add weight to his responsibilities and calls forth very considerable skill from him.

There is one way in which a teacher cannot help having a personal effect upon his pupils' development, viz. through the prestige which he has in their eyes by reason of his age, experience, capabilities and official position. Some teachers, like some parents, consciously and deliberately seek to impose themselves upon their charges. By the sheer force of their personalities they consciously, as well as unconsciously, exercise their influence upon their charges' growing powers in such a way that they rob the latter of their natural rights to self-determination, and to the development of their own personalities. The teacher, or the parent, who sets himself or herself as a model of human perfection before the children, and compels imitation, or seeks to compel it, especially in moral and ethical matters, will not only contravene the basic principles which we have enunciated here, but, sooner or later, will inevitably experience considerable discomfiture of a personal nature to say nothing of "loss of face" and disappointment. This may, however, come too late to be of benefit to the child or to the children who have suffered. We all know, too, of the possessive parent who seeks to make himself or herself indispensable to a child and to keep the latter in an over-prolonged state of dependence. Some few teachers also show defects of a comparable nature. They over-teach, and over-care for their charges and frustrate the workings of the urge to independence of the latter. A fundamental law of nature is violated and the children's development arrested and distorted.

A modern teacher, on the other hand, avoids the pitfalls indicated above. Aware of the influence which his own personality is bound to have upon his pupils through the factor of imitation (see p. 14), he is alive to the possible dangers. He therefore endeavours, as far as possible, to establish intimate relationships not so much between the pupils and himself, as between them and the wider world in its material, social, intellectual and spiritual aspects. He looks upon himself as an agent of much wider influences than those of his own immediate personality. It is idle,

however, to expect that he can effect this adjustment between his pupils and their world without at the same time developing personal relationships between those pupils and himself. These are inevitable and inescapable, but he must try and view them in their right perspective as being of relatively minor importance except in so far as they serve the wider ends. He must constantly have in mind the aim of leading the children to grow, through their developing physical and intellectual powers, increasingly independent of his services, to wean them, so to speak, from the nurture of the school environment. The greatest tribute which pupils can pay a teacher is to be able to do without him. A simple practical rule which follows, and one which young teachers will find useful, is that, within certain limits which we shall see in a later chapter, anything which a child can do for himself is better than anything the teacher can do for him.

We have endeavoured, in this chapter, to bring out the most significant characteristics of the art of teaching, as we find it wholly or partly practised in modern schools, and to show the basic views of human nature and its natural modes of development from which these characteristics are derived. We have been led throughout to place, in the forefront of the picture, the children and their characteristics, the "raw materials," so to speak, with which the artist must work. This, as we have noted, is inevitable in view of the nature of the art itself. The artist's function, however, is a most important one, viz. to arrange the conditions which make possible the type of growth of the child's body and mind which accords with the purpose of his art as we have stated it here. This will involve the responsibility of selecting the experiences and activities which best give effect to what is required and of conducting them in such a way that the maximum efficiency is obtained with economy of time and energy. Expressed in terms of school, the teacher's function will involve the organisation of the school life and work of the little community entrusted to his care so that its members get full opportunities for healthy mental and physical growth, and for social development. To these ends he must arrange the conditions necessary for them to be able to

acquire, through appropriate activities and experiences, the habits, skills and knowledge which accord with their individual capacities and needs in life, viewed in its broadest sense. He must, moreover, assist them to develop interests and attitudes leading to a sense of values of an enlightened nature, since without these the habits, skills and knowledge acquired will lack direction and the childrens' progress in the art of living, the only ultimate subject-matter of education, will be limited.

An efficient teacher is one who can, by the use of suitable methods, give practical effect to the above requirements. It is therefore to the study of the learning process and the development of teaching technique that we turn in the succeeding chapters.

CHAPTER II

HOW CHILDREN LEARN

A. PHYSICAL DEVELOPMENT

BODY AND MIND

WE saw in Chapter I that the practice of teaching is primarily concerned with the development through their experiences of certain inborn potentialities which children possess. It is our purpose in this and the following chapters to examine these learning processes with a view to determining ways and means whereby the teacher can best direct them so as to serve educational ends.

In the first place let us consider a common school accomplishment, say the writing of a letter or of an original exercise involving the use of the mother tongue. What exactly has a child achieved in the mastery of this accomplishment?

To begin with the young person concerned has mastered the highly complex and rather wonderful skills involved in his sitting at a desk, balancing his body in the correct position, controlling his head and eye movements, etc. In these respects he has effected a big development since the time he first came into the world as a baby, unable to do more than lie inertly in a cot or his parent's arms.

Secondly, there is the actual physical act of writing, which involves the manipulation of the pen upon the paper to make the characteristic symbols which form the elements of this complicated and highly skilled activity. The manipulations involved are not haphazard ones nor the result of capricious controls, but the products of highly organised systematically controlled movements involving his hand, fingers and eyes.

Thirdly, the words and phrases which his physical machinery traces out are supplied by the writer's mind. Spellings are re-

membered, and the phrases commonly used as vehicles to express ideas are ready at hand to serve the writer's purpose, which is to transmit certain of his own ideas to paper. These conventional forms of written English are products of his mental equipment.

Lastly, the writer is able to exercise his mental powers in another kind of activity—the thinking out of what to write, weighing up the relative effectiveness of alternative ways of expressing himself, selecting relevant items from his store of knowledge and rejecting the irrelevant, and so on.

We see in this example different kinds of accomplishments, characteristic of practically the whole range of learning which children will do in the course of their school lives. There are achievements in physical control, both of the pupil's own body itself and of material things which are not a part of his body, e.g. the pen and the paper. We also note at least two kinds of mental controls which are involved, viz. the habitual kind which supplies the writer with spellings and phrasing, and that which enables him "to think" and use his already established ideas to produce new ones, i.e. to serve a creative purpose.

Practically all school activities and learning are concerned with one or more of the types of learning which are indicated here. Physical skills have to be mastered to enable the pupil to control his own body, while manipulative skills such as writing, the use of materials and tools, etc., are involved in practically all educational work. On the mental plane there are the habits of reading, writing, and speaking, as well as other more or less narrowly and specifically patterned modes of thought, together with the higher activities which we usually associate with "thinking" proper. There is, however, one particularly important thing to bear in mind when considering these different aspects of learning. If a skilled writer is observed carefully it will be seen that he is not carrying out a number of separately controlled activities in his writing. He is really only doing the one thing, viz. writing. His mind and his body are not being used as separate agencies but they are being employed together in a very closely knit partnership. In reaching this highly skilled level of accomplishment he

has effected a complex organisation of a number of physical and mental activities which he has brought together and welded into one consolidated whole under the control of his mind. Physically he has learnt a number of highly skilled and complicated movements which he can employ without any conscious attention to the details of the way in which he performs them. They are merely servants ready to do his bidding as he requires them. They have not always been thus. He has probably in the beginning had to give a good deal of conscious attention to the details of the way in which the several movements which he employs are carried out. Their mastery has been a matter of long and persistent effortful exercise. But once they have been mastered their control becomes a matter of "second nature." On the mental level the writer's activities are, broadly speaking, of two kinds : viz. (i) those which are habitual, e.g. the spelling of words which seem almost to "drip" off the pen in their right patterns, together with the common phrases and forms of expression which come in an effortless way, and (ii) those which arise in the course of hard deliberate thinking, a kind of mental creativity, using for its raw materials the writer's appreciative understanding of the subject upon which he is writing and his information upon relevant matters.

These mental and physical aspects of human development will be considered separately in this and the following chapters. It must be noted, however, that this is largely a matter of convenience. A hard and fast line of demarcation between mental and physical life cannot safely be drawn since there is a most intimate relationship existing between these two aspects of human activity. We have already noted this in the case of the writer who uses both mind and body in a single co-ordinated activity.¹ As soon as we get beyond the lowest levels of all, viz. those which are concerned with the primitive functioning of bodily machinery in maintaining mere human existence, such as visceral movements, glandular action and the like, mental and physical activities begin

¹ A further illustration of the intimate "one-ness" of body and mind is provided by many authors who cannot dictate their copy to stenographers. They must "feel" the pen upon the paper before their creative impulses find full expression.

to get inextricably interwoven, one type very rarely functioning without its having a most important effect upon the other. We can, however, classify activities according to whether they are predominantly physical or mental, and it is on this basis that the classification is made here. The only point in making the classification at all is that teaching technique is affected materially by the type of human machinery with which one is mainly concerned in any particular teaching.

Another difficulty occurs when one attempts to classify activities, both mental and physical, into those which are consciously controlled and those which are a matter of habit or "second nature." Many habitual acts have been acquired in the early stages, as we pointed out above, by practising consciously controlled mental and physical actions. Their subsequent establishment as matters of "second nature" is a later development. Moreover, acts which normally are matters of habit can quite easily come into the forefront of consciousness when something goes wrong. For example, his spelling habits may let the writer down, doubts arise, his memory is searched, reference may be made to the dictionary and so on. In physical habits one observes the same thing, e.g. most people become painfully aware of all the mechanics of walking when a sore foot is developed on a long walk, or a cut finger interferes with writing and one has to develop a new technique. The general law appears to be that control tends to pass over from the higher centres of conscious mental life to the lower centres of which we are not conscious, as the development of habit formation proceeds. This is part of the general economy of nature by which energy is released for use in higher types of activities as the lower ones become firmly established.

CHILDREN'S PHYSICAL ENDOWMENT

The Machinery Available.—A human baby is born into the world with highly complex physical machinery which he inherits from different levels in his evolutionary history.

At the lowest levels of all there is the machinery which enables his body to carry out the elementary functions which are the bases

of human existence. The movements of the blood around the body, of the viscera, and of the glandular system are but a few examples of the functioning of the bodily machinery at this primitive level. In the main these movements cannot be directly modified by education though of course health education can assist the child to keep the mechanisms concerned in an efficient condition. They are not, however, educable in the ordinary sense and we are not therefore concerned with them here, even though they are not without very definite effects upon the learning process.

Closely allied to the foregoing and somewhat similar in purpose are the reflexes. These are inherited patterns of behaviour which do not have to be learned by the baby, but which he brings into the world in a "ready for use" organisation. They enable their possessor to carry out without any special training certain actions which have a definite survival value. For example, they enable him to feed, first by sucking, and later by biting, grinding, and salivating his food, to protect himself from harm by grasping nearby objects when he feels himself falling, to blink when a missile approaches his eyes, to vomit when food does not agree with him, to make known his personal states of discomfort or hunger by crying, and so on.

Some of the reflexes are fixed and can only be modified even in adults with the greatest of difficulty. For example, most adults find it difficult to modify the hand withdrawal from heat and pain, snoring, and shivering reflexes. In children reflexes of this type can for practical purposes be considered as pure and unmodifiable. On the other hand, some of these patterns are extremely easily modified in the course of children's experiences, e.g. the grasping, kicking and vocal reflexes. In their developed and modified forms they become the bases upon which the development of some of the very highly skilled and quite complicated physical activities are built.

At the higher levels children are capable of taking a hand in controlling their own activities. They do not have to wait for something outside themselves to start off a mechanism to move parts of their bodies, and they can consciously and deliberately

initiate movements of their limbs or of their whole bodies as they will.¹ These are the movements which, in their highly developed forms, become the vehicles for their expression of the more advanced types of physical skills, e.g. pole jumping, dancing, craft work and playing musical instruments. When deliberately making these movements, however, many of their modified reflexes are brought into play and make their due contribution to the activity concerned.

The physical machinery which is involved in most of the movements with which we are concerned in teaching children of school age is a threefold one ; the bony framework or skeletal system of the body, the muscular equipment and the nervous system.

The skeletal framework of the human body is a very cleverly designed system of bony levers which are so jointed, or attached to one another, that the bones concerned can be moved to serve the purposes for which they are intended. Their construction, too, conforms to purpose since the bones are strongest where the greatest strains occur, e.g. in the legs, and they are most ingeniously jointed where the greatest suppleness and flexibility are required, e.g. in the fingers and wrists.

The muscular organisation is a complex endowment which is especially designed to move the bony levers by bringing power to bear just where it is required. The actual movements of the skeletal framework are effected by contractions and relaxations of ingeniously organised groups of muscles according to the orders of the nervous system in which is invested complete control of the whole human machinery.

A complete account of the structure and functioning of the nervous system would occupy much more than a volume of an ordinary sized book. We can, however, get a simple view in outline of the way in which it functions by considering what happens when a typical reflex action takes place, e.g. the hand

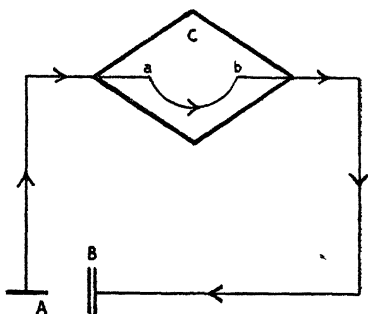
¹ For a full account of the psychological standpoint taken in this book see Sir T. Percy Nunn's *Education : Its Data and First Principles* (Arnold), and A. G. Hughes and E. H. Hughes : *Learning and Teaching* (Longmans). The "behaviourist" school of psychologists holds a conflicting view, see Watson, J. B., *Behaviourism* (New York).

withdrawal reflex. When a pin is jabbed into the hand of an unsuspecting person the immediately observable result is that the hand is hurriedly snatched away from the neighbourhood of the pin. Why and how does this happen? To begin with, when the point of the pin punctures the skin of the hand, certain very sensitive receptors in the skin are stimulated. These receptors are present in the whole of the skin tissue of the human body. They are part of the human defence machinery, especially designed for protective purposes to receive "danger messages" of this very nature. Connected with the receptors is a complete set of communications of a special kind, nerves running inwards to the spinal column. Inside the spinal column is the headquarters of the whole communication system—the spinal cord and its lumpy extension, the brain. As soon as the skin receptors are stimulated by the pin prick they dispatch a message inwards to the headquarters. This nerve impulse is received at headquarters where it finds, automatically prepared for it, a connection with an outgoing set of nerve communications. Passing along these communications the outgoing nerve messages reach certain groups of muscles in the victim's arm and hand. Immediately the impulses reach the muscles some of them contract and others relax. The result is, as we have seen, that the hand is snatched away and further pain is avoided.

All reflex actions are of the above type and show the same three-fold aspects, viz. (i) reception of stimuli leading to nerve impulses passing inwards, (ii) receipt of these at headquarters and automatic connection with outgoing sets of nerves, and (iii) transmission of outgoing messages to the appropriate muscles which react according to plan. A diagrammatic representation of this organisation, which is known as "the reflex arc," is given on opposite page.

As we noted on page 36 children are not restricted in their actions to those of the reflex type, though some psychologists would have us believe that all our actions are at best modified ("conditioned") reflexes. We need not here enter into this controversy since for our practical purposes as teachers it is immaterial whether these limitations do, or do not hold. While

therefore paying all the respect due to the reflexes in their raw or in their modified forms as the bases of human actions, we can say that children behave *as if* they were capable of starting up trains of activity of their own choosing and deliberately controlling certain of their actions. Observation of children will soon convince a teacher that this is so, and it is sometimes most disconcerting when a child's own "inner impulses" seem to baffle the teacher's hardest efforts to get him to do one thing while these impulses favour another. This situation arises when the central organisation, the headquarters of the nervous system, acts not merely as a kind of automatic telephone exchange between two sets of communications, but takes a hand itself and becomes an originating office. From the higher centres of this system, located in the child's brain, nerve impulses are sent along an outgoing set of nerves deliberately chosen by the child himself. His actions are then the result of his own volition, limited though they may be by physical achievements which he has already mastered. Referring to the figure, that part of the nervous system from *A* to *a* appears to be in abeyance and *C* itself initiates the nerve impulses represented by *b* to *B*. In other words it is not necessary for us to have pins or hot coals applied to our hands before we can move them, nor to have missiles thrown at our eyes before we blink.



The Reflex Arc

A, receptor in the skin; *Aa* the course of the inward nerve impulse; *ab*, the inborn link-up within the headquarters, *C*; *bB*, the course of out-going nerve impulses; *B*, the muscle plates actuating the movements of the limb.

HOW REFLEX ACTIONS ARE MODIFIED

The way that reflex actions are modified shows in the simplest form how the nerve-muscle ("neuro-muscular") machinery is

developed through experiences. The example given on page 16 of photographing the baby is rather too complex for complete analysis at this stage. It serves to show, however, how, when a number of alternative responses (R_1 , R_2 , and R_3) were brought together in a particular experience, one of them (R_1), was completely eliminated, and another (R_2), became developed into a third (R_3). This became the "learned" response for different situations (S_1 and S_2). The reader may care to follow this out in the notes given, but the relatively complex nature of the development as it took place warns us against the dangers of over-simplification which may arise from an account such as we have given of physical machinery in this chapter. Human nature in both its physical and mental aspects is a highly complex affair even in its most rudimentary stages of development. Most attempts to explain it in simple terms have resulted in conveying a rather inadequate picture of things as they are, or in the assumption of a mechanistic point of view which is totally inadequate as a practical guide. While therefore appreciating this danger let us examine a reflex action of a pure type, i.e. one which was at the commencement of the incident unmodified as far as it was possible to observe, and note the way in which it was modified or conditioned by experience.

A young child, for the first time in her life, is attracted by the brightly glowing coil of an electric bowl radiator (S_1). When she sees it the reflex arcs controlling her stretching and grasping reflexes come into operation and she seizes the coil (R_1). $S_1 \rightarrow R_1$ therefore represents the original reflex, comparable in its action to the one described on page 38. The act of touching the coil causes the receptors in her fingers to be stimulated (S_2), with the result that the hand withdrawal reflex is "touched off" and her hand is automatically snatched away (R_2), i.e. $S_2 \rightarrow R_2$. The total chain of events, however, is experienced as a single unified affair stretching from S_1 to R_2 . The pain caused colours the child's attitude towards the coil so that if the coil were in the future brought near her she would at least keep her hand away from it, i.e. the conditioned reflex is now $S_1 \rightarrow R_2$, the intermediate step of grasping

the coil being eliminated. This may not occur immediately since some children need more than one burn "to learn their lesson."¹ In the case quoted here one experience was quite enough and the next time the child spotted the glowing coil of the radiator she not only withdrew her hand from it but bolted from the room as fast as she could crawl.

The above example shows a very simple form of conditioning, viz. that in which two separate arcs merge into one, and the neural pattern which results is a kind of short circuiting of nerve impulses from one set of communications ("conduction-units") to another. There are many other possibilities of modifying inherited patterns of behaviour. By training, children can be brought to develop the range and complexity of their responses, e.g. instead of grasping and eating food immediately they see it, they may ask for it, or go into a shop, buy it, and carry it home before consuming it. There are also modifications effected in the course of experience, in the kind of situations which act as stimuli to the reflexes. The sight of a lemon, or even the thought of it, may set the mouth watering, i.e. actuate the salivary reflexes, and an almost limitless range of real and imaginary situations very much different from the basic stimuli which we mentioned on p. 9, may initiate fear responses. Conditioning is a process which is continually going on in the course of any child's development and one with which the teacher is intimately concerned. By the time, however, that a child gets to school few of the modifiable reflexes will appear in their unmodified or pure forms. The teacher's task will be to use the modifications which have already been effected as bases upon which to develop further the physical controls and skills which are involved in school work. The physical activities which the children have already mastered through conditioning of reflexes, or by any other methods, represent the raw material with which the teacher works in conducting their new ventures at the higher levels.

¹It should be noted that the writer is not recommending this process of conditioning as a way of teaching babies that electric fires are dangerous. The law requires that children shall be protected from exposure to dangers of this kind.

HOW CHILDREN DEVELOP PHYSICAL SKILLS

In the course of their education children require to master many skills which depend upon their neuro-muscular development. We have, for example, already noted the manipulative skill involved in the physical act of writing. The use of tools in handicraft, of apparatus in science, of materials in needlecraft and painting, of instruments in music, are but a few examples of the skills which are involved. On the purely physical side children need, moreover, to develop the controls of their own bodies in the many activities involved in physical training, games, dancing, etc. These needs are, however, perfectly natural ones. A child's urge to master his world arises from the promptings to independence which we mentioned in Chapter I. His interest in the ways in which other people achieve this is a natural sequel, and what others can do becomes a desirable objective for him.¹ His attempts to achieve this objective usually follow a development more or less of the following nature :—

(1) The would-be performer notes a pattern of activity adopted by his fellows or by an adult whose prowess he respects. He desires to make this pattern of action one of his own accomplishments. Its nature is observed and a general appreciation of its course is made. The ends or purposes of the activity are usually very clearly grasped, as these are often the most attractive features. The scoring of the goal is more interesting than the foot action, spin, etc., involved in the actual kicking ; the scarf or jumper is more attractive at the outset than the mechanical details of knitting, interpreting the pattern, etc. ; and the actual "cartwheel" takes precedence in attention over the hand-placing, balance, etc., involved. The

¹ It is reported that one young member of the Royal Family had to be forcibly restrained at a performance of "Peter Pan," from "flying" from the Royal Box to the stage.

Many parents can testify to the bumps and bruises sustained by their offspring when, after witnessing young Darling's exploits at the theatre, they do a bit of "flying" themselves at home.

At School Sports meetings the observer will find it a very common practice for the "small fry" to collect in odd corners to throw their own "javelins," perform their own "record breaking" jumps, etc.

details of the movements are, therefore, usually somewhat hastily noted or even passed over altogether at this early stage.

(2) The would-be performer now tries his hand at copying the desired activity. He usually attempts it *in toto*, his object being to achieve the desired end rather than to imitate slavishly any detailed steps which he has seen. He deliberately and consciously tries his own powers out in the imitation of the pattern as he has appreciated it. Using well established neuro-muscular organisations which he has mastered in other connections all kind of movements may be produced. Some of these may help, others may be unnecessary, while some may even hinder his performance. For example, a child when learning to write, makes many unnecessary movements of his head, of his tongue, and even of his feet. It sometimes appears as if he uses the whole of his body rather than those mechanisms which are intimately concerned with writing. There is a consequent diffusion of energy and hindrance to achievement. Refinements of the activity are matters of subsequent development.

(3) While the learner remains interested, he will persist in his attempts to achieve his ends. His progress depends upon : (a) his appreciation of the nature of the activity involved, (b) the complexity of the skill, (c) the quality of the performance he takes as his model, and (d) his own natural endowment for effecting neuro-muscular adjustments. The method by which he proceeds is as follows. As he tries out his powers, unnecessary and harmful movements tend to be eliminated. Movements which are successful in helping him to achieve his ends are seized upon and reinforced through the feeling of success which accompanies their performance.

This method is sometimes called the method of learning by "trial and error." Strictly speaking, however, the learner gets more positive help from his successes than he does from his errors, from open roads rather than from blind alleys. This aspect is worthy of the teacher's special attention. The method of "trial and error" or "trial and success," whichever one may choose to call it, is not such a blind "hit or miss" process as its name may

imply. In his experimenting the learner is guided by his growing insight into the nature of the activity he is pursuing, and by his developing appreciation of the results of his own efforts. He may strike up against "snags" and seek enlightenment from others upon "how to do it." The results of his own attempts will become increasingly, though perhaps not fully, apparent as he goes on. Provided, however, his interest is maintained he will struggle on to produce at least a recognisable reproduction of the desired activity. The obviously unhelpful and hindering movements may be partly or wholly eliminated and the successful ones seized upon to form the basic elements of the pattern.

(4) The next stage in the development is the practice of the pattern evolved in order to produce a satisfying standard of performance. The new found powers are exercised to achieve fuller mastery over the mechanisms involved. When progress is evident the learner is encouraged, when it is lacking he tends to be discouraged. It is at this stage that any faulty architecture of the preceding stage is most likely to make its effects felt. It is, moreover, less likely to become evident to the learner himself and to become increasingly difficult to eradicate. Practice consolidates the organisation of the whole system. Any movements, therefore, which in stage (3) have not become obvious to the learner as unhelpful ones and which have been caught up in the pattern, are likely to become firmly established to the detriment of performance. If we remember also the general tendency during habit formation for control to pass over to the lower centres we see why harmful elements may become increasingly difficult for the learner to detect at this stage.

Expressed in terms of neuro-muscular machinery the process of learning a complex physical activity usually takes the following course. The initiating nerve impulses come from the learner's headquarters system. The nervous energy passes from that system along the outgoing set of nerve communications to mechanisms selected by the learner himself. Co-ordination of nerves and muscles already established are brought into play, bringing in their train hosts of sub-mechanisms upon which their functioning

depends. Diffusion of nervous energy into useless and unhelpful conduction units is likely to result from the untutored learner's early efforts. Later in the development this energy becomes concentrated into the appropriate channels. How and why this happens cannot be adequately explained as authorities differ upon this question. That in some way the process is dependent upon the results of the movements which the learner makes is quite certain. That the learner should be fully conscious of all these results is not necessary. A great deal of consolidation and development of neuro-muscular systems can be guided and effected by processes of which the learner need not be conscious.¹ The outstanding characteristics of the nervous system which assist the learning process are, however, quite obvious. These are:—

(i) The nervous system acts in a unifying or integrative way in bringing different organisations into functional relationship with one another to form new systems.

(ii) In the course of practice these systems tend to become firmly established, diffusion of energy being reduced, and its redirection into selected conduction units effected.

(iii) The more often nervous energy uses particular paths of discharge the more likely it is to use those paths on subsequent occasions when circumstances are otherwise favourable.

(iv) Development of organised neuro-muscular systems enables the owner's mental activity to be relieved of the immediate necessity of attending to the details of the ways in which movements are effected, and to be available for higher purposes, e.g. the effective or creative use of the skill concerned.

¹ Equally important is the fact that learners do not necessarily consciously select and control all the elements of an activity when in the early stages. It is difficult, for example, to imagine the youthful Mozart practising scales, etc., and consciously ordering his fingers to certain places on the keyboard even in his earliest days.

CHAPTER III

HOW CHILDREN LEARN—*Contd.*

B. MENTAL DEVELOPMENT

IN Chapter II the reader will doubtless have noticed how the writer, in describing the development of children's physical machinery, had perforce to use such terms as "interests," "desired ends," "insight," "appreciation," and so on. That these refer to other than purely physical events is another illustration of the inescapable fact that body and mind work in close interdependence and that full consideration of the one cannot be attempted without taking the other into account. With this in mind therefore let us examine some of the more important characteristics of children's mental life which are essential to an understanding of their learning processes.

I. The Senses and the Mind

We have already seen in Chapter I that children become increasingly familiar with their environment, i.e. they get to know more about it by the development, through their experiences, of the innate patterns of behaviour which they bring into the world. In the illustration on page 41 of the child and the electric radiator, we saw how the little girl got to know something new about her world through her experience. It is important to note that in this experience her senses played a very important part. Without her sense of sight the coil would probably not have been noticed, and without her sense of touch she would not have found out what she did about it.

The senses with which human beings are endowed have been called the "gateways of knowledge." This is a useful figure up to a point, but a dangerous one, as we have seen, if it leads in any way to the idea that teaching is a matter of forcing knowledge

through entrances to children's minds. Viewed, however, in their true light, the senses are very important avenues of approach to children's mental lives. They are in fact the means by which children get into touch with and obtain news from the world outside themselves. They, moreover, enable children to guide the movements of the whole or of parts of their bodies about that world, as well as to protect vital and vulnerable parts of those bodies.

At the physical level a sense involves two things : (i) a sensitive receptor or set of receptors, and (ii) a system of nerve communications running inwards from the receptors to the headquarters (see p. 38). The eye, for example, is a highly developed sense organ especially sensitive to light energy. By an ingenious arrangement light waves from external objects are focused upon the retina, a nerve tissue at the back of the eye especially sensitive to stimuli of this nature. The nerve impulses which are set up in the retina are conveyed through the optical nerve to the visual area of the brain. The owner of the eye is thus able through the medium of this machinery to become aware of objects, persons, and events completely external to himself. Hearing is another one of the senses which has long-range reception. Sound waves from external vibrating objects impinge upon the eardrums. The resultant vibrations of these membranes are subsequently communicated through the middle- to the inner-ear where they are picked up by specially adapted nerve endings and the resulting nerve impulses are transmitted to the aural centres of the brain. The senses of smell and of taste are highly specialised organisations serving their own particular purposes, which are primarily concerned with feeding. In the skin of the body are located the receptors of the tactile group which are susceptible, according to their particular functions, to pressure, temperature and pain. Less well defined, but nevertheless of great importance in education, are the receptors of the muscle sense located in the muscles and joints of the body. This sense conveys news to us about the movements of our limbs and their attendant muscles. It gives us the characteristic "feel" of the movements which we make.

We thus see from their very nature how important a rôle the senses must play in children's learning processes since they are essential parts of their equipment for their getting to know about their environment and about their own bodies. The development of the senses and the efficiency of their working will be an important factor for the teacher to consider. Children are not necessarily born with them fully developed. The organ of sight is at birth a rather imperfect piece of equipment, often rather under-focused. Acuity of vision usually develops progressively in healthy childhood, but the whole sense is so delicate an organisation, and is so easily damaged, that teachers of young children are extremely careful in the demands which they make upon it. The sense of hearing does not usually reach full maturity until the age of about seven, while children's powers to discriminate the pitch of sounds may often go on developing up to the age of eleven. The greatest development in the muscle sense is observable in children between the ages of seven and twelve. In the tactile group there appears to be a progressive decline in sensitivity after the age of seven, the young child being superior to the average adult in this respect. Teaching methods must, therefore, pay due regard to any of the limitations imposed by the above-mentioned factors in children's endowment if the full effect is to be obtained from any teaching which aims at contacting the children's inner mental life through the senses. Not only is this true of the education of younger children but it is also of concern for the teacher of older girls and boys. Any defects in sensory equipment, either in its functioning or development, will make themselves felt at all stages in children's education.

We have so far spoken of the neural bases of the senses and have stressed the function of these in enabling their owners to get to know about their environment. Let us see how this knowledge is effected, by examining a typical sense experience, e.g. let the reader look at some object in the room in which he is sitting. What exactly happens? There are several steps in the process :—

- (i) Light waves from the object, e.g. a book or a chair, reach the front window of his eye.

- (ii) These pass through the transparent window and by an ingenious camera-like system of lens and screen they are brought to a focus upon the latter.
- (iii) Certain sensitive layers in the neural screen (retina) are stimulated. Nerve impulses are set up.
- (iv) The impulses are transmitted to the visual areas of the brain.
- (v) The observer *sees* the object, chair, book, etc., from which the light comes in stage (i).

Stages (i) to (iv) are straightforward physical events showing an unbroken continuum explicable in terms of physical science right up to the end of stage (iv), the receipt of the nerve impulses in the visual area of the brain. But here a break occurs. In some way, the explanation of which is not forthcoming, what was a series of physical events becomes a mental one, non-physical in character, something of a different order altogether. It now becomes "mind stuff" which is not "stuff" in the material sense at all. The observer *sees* a chair or book, and he *knows* that he sees the object, his knowledge belonging to the realm of ideas, a world of its own nature. That this world is intimately connected with the physical sensory world is most significant even though the exact connection cannot be worked out. It is through the medium of the mind that the contributions of the sensory world are interpreted and given meaning. The mind of the observer does the actual perceiving of the objects using the sensory data as the material upon which to work. "Percepts," as they are called, are the interpretations which minds place upon the offerings of the senses, the ideas which accrue as the result of sensory experience.

It follows therefore that the basis for the enrichment of perceptual life is best laid by developing children's powers of discrimination through their senses, especially in the early stages. Later in their school development, sensory appeals have still a most potent value. Seeing, hearing, feeling, tasting, smelling and the actual movements which the learners make in the physical manipulation of materials are all important, not only as a means

for developing their immediate knowledge but also for laying in a stock of mental material to be used, as we shall later see, for development of the higher mental powers.

II. How Children's Minds Develop

A. PERCEPTS

Among the outstanding characteristics of the development of percepts is the fact that the mind acts as a kind of storehouse of experience, retaining some of the effects of previous experiences which will affect the interpretations of new sense impressions.

The following example will illustrate this. R.C., aged 21 months, was given a pencil and some white paper. She did not appear to have ever had these before and the writer showed her how to make marks with the pencil upon the paper. She quickly imitated and her interest in the results lasted for an appreciable time. After a period, with a somewhat puzzled expression on her face, she sought to pick up the marks from the paper. Failing in this she slowly drew lines across the paper, trying meanwhile to snatch up those marks with her left hand before they could "drop" from the pencil point to the paper. The pencil was next examined closely and an endeavour made to pick out the marks from its point. Failing in this, R.C. threw it away, attacked the paper with her tongue in an endeavour to lick them off, and the experiment had to be ended in the interests of health.

Obviously the percepts which R.C. had were coloured by her previous experiences of "hairs" and "threads" which she now thought she was "dropping" off her pencil. She attacked the new situation in the light of this previous experience and tried all ways to pick them up before resorting to her "lickery." Her new experience was interpreted in the light of her previous knowledge which led up to further development of this knowledge. This is a general rule of mental life; the living past so to speak coerces, vitalises, and gives meaning to the present. It applies to grown-ups as well as to children. The writer, for example, was on one occasion somewhat amused when a teacher obtained the answer, "Norma

Shearer!" in response to the question, "Who was Elizabeth Browning?" The writer was rather abashed, however, on thinking over the incident, to find that for him Mr. Edward Moulton Barrett was none other than Mr. Charles Laughton, since the only acquaintance which he had ever had with the former was through the latter's brilliant performance in the film to which the pupil referred.

We see in the above the basis for the old teaching maxim or slogan, "Proceed from the known to the unknown." This conforms to the way in which children will tackle the interpretation of their new experiences. Observance, however, of this rule must not preclude the teacher from taking as the starting-point of an activity some completely new experience, e.g. a physical phenomenon, a poem, or a musical composition, which is certainly not wholly comprehensible, i.e. "known" to the pupils. The "unknown" in cases like these provides the stimulus for the motivation of the subsequent activity, the exploration of the experiences and development of an appreciative understanding of them, in the course of which the "known" elements will naturally have a part to play.

Percepts, i.e. the interpretations of sensory experiences are, as we have noted, the foundations of a child's world of ideas. The richer the experiences which a child has, and the more vital and varied these are, the wealthier does his perceptual life become. Percepts by themselves, however, would have little value unless the mind of the child had the power of carrying on some form of mental life after the stimulation of his sense organs ceased, and of working upon and developing the ideas aroused. Ideas do not lie static in the child's mind like bricks in a wall or currants in a bun. They form part of a living and developing organisation, becoming grouped or associated together, interacting with one another to form patterns, coming up to the focus of consciousness one moment, receding the next, and so on.

Mental life, moreover, is very frequently carried on at the perceptual level quite independently of any actual stimulation of the sense organs. We can as it were experience sights, sounds,

smells, taste, etc., without external objects being present to our senses, through the use of what is termed "imagery." Images of percepts of every kind are at the child's disposal for him to re-live in imagination experiences which he has already had and to invent new ones for himself. Some authorities think that children's imagery is more vivid than that of their elders, while others contend that their imagery is not necessarily more vivid but that children make greater use of it than adults do. Whichever explanation is true the facts remain that children's imagery is a most important part of their mental lives and that it plays an essential rôle in their learning processes.

B. CONCEPTS

Percepts are, as we have seen, mental events or ideas of a specific nature, highly specialised and with direct counterparts in the objective world. For example, beside the writer, reclining upon a rug, is Tim, a large black and white cat who is a regular visitor to the house. The characters of this animal are perfectly familiar; his size, markings, movements, etc., are known to the writer through the evidence of his senses. Suppose that while the writer was attending to some other business Tim could be enticed from the room and another animal placed upon the rug. Immediately the writer glanced in that direction his percepts would, through their very nature, make him aware of the substitution. But this would not be all, since he would immediately be able to note whether the newcomer were a cat or some other animal, because he carries in his mind a kind of general idea of the features which distinguish the class of animals which we call "cats." It is a pattern of thought which he uses to check or measure up and evaluate the sensory data which he receives, and which is used in their interpretation. It is not narrowly specific in nature, nor related to any particular cat in the objective world, but quite generalised and related to all the cats about which the writer has any knowledge at all.

These general ideas or notions of classes of objects, events, etc., are called "concepts." They are a common feature of mental

life and are another example of the kind of product of the mind which can exist in the absence of the actual physical stimulation of the senses. The formation of these patterns is mainly a matter of abstraction from different percepts of common elements and characteristics. Children often form concepts very hazily and crudely at very early stages in their mental development. The example given on page 50 of R.C.'s adventures with the pencilled "threads" shows a faulty concept which was probably modified through the child's experience. The gay inconsequence with which young children will eat, or attempt to eat, almost anything within range which attracts them shows how immaturely and sketchily patterned is what passes at their stage for the concept of food. Later in their development their improved powers of discrimination and wider experiences enable them to pass from this very hazy and ill-defined mental attitude to one of clarity and of clear-eyed notions as to food.

A great deal of school work is concerned with developing general ideas, i.e. concepts. Mathematics abounds in this kind of work, e.g. notions of angles, geometrical figures, area, interest, equations, and so on. Science, geography, literature, history, etc., all deal with their own characteristic concepts and general principles, which are of vital concern to the learner if he is to make progress in these studies. It is important therefore that the teacher should have a clear idea as to the way in which these concepts naturally arise.

The basis is, as we have seen, the perceptual life of the learner. The writer's concept of "cat" has been derived from his percepts of particular cats, not of Tim alone, but of all the cats which he has actually seen, fed, stroked, etc. From this mass of percepts is evolved the pattern which is available for evaluating any fresh experiences with animals. It is the fact that conceptual mental levels are dependent directly or indirectly upon the perceptual levels which is responsible for the teaching maxim; "Proceed from the concrete to the abstract, from the particular to the general." This is a sound guide if it is appreciated that "concrete," "abstract," "particular," "general" are relative terms, and that at

different stages of development the learner's needs can be satisfied by different degrees of "concreteness" or "particularity." For example, when children first come to school the general notion of addition of numbers will be something which has to be developed through a wide range of perceptual experiences, e.g. by handling concretes such as counters, beads and sticks, and manipulating them in a variety of situations and different ways. For the VIth form student, however, grappling with an advanced mathematical principle, the mere symbol " $+$ " will be a relatively concrete thing.

For the teacher the main lesson to be derived from a study of the way in which concepts are formed is the natural sequence of events, viz. from sensory experience and perceptual development to the conceptual level. Effective teaching will usually conform to this sequence. It is unwise to be dogmatic in respect of matters of school methods, but it would be perhaps not too rash to assert that one of the least effective ways to start any lesson on a new topic is to begin it in the way which used to be so common, viz. by the verbal statement of a general principle or concept, and to develop the lesson from that angle. For example, many grammar lessons still begin with a definition such as "A noun is etc. . . ." The children are expected to learn this definition and to give examples to order of nouns of different kinds and sizes. Mathematics and science lessons also used often to commence with generalisations, e.g. "The area of a rectangle is length times breadth," or "The volume of a gas is inversely proportional to the pressure." Subsequent activity was directed towards illustrating and applying these principles. This is the exact reverse of the order in which these principles were originally and naturally developed. In a grammar lesson conforming to the natural order of development, which we here suggest should guide the teaching, the approach would be to examine a piece of English with a view to discovering the functions of certain types of words as they are actually used in that passage. From this the definition or general principle is deduced. In the mathematical example which was quoted above, directed experimentation with a variety of particular rectangles actually drawn to measurement, could well lead up to the general statement of the

way in which the area of any rectangle can be found. In the science example, experimental work could be undertaken to discover, with the teacher's help, the way in which the volume of a gas altered when the pressure was varied. Greater interest, a by no means inconsiderable factor in children's learning, is likely to be aroused by these methods. The activities involved, moreover, more nearly conform to the natural ways of developing generalisations than do those which were first described.

It is perhaps not altogether out of place to begin with generalisations and statements of principles with more advanced students who have reached the stage where systematisation of their knowledge is of prime interest. In schools, however, the teacher will find that for all children in the primary stage, and for the bulk of those in the post-primary stage, the method suggested here will be more effective and lead to more durable results.

C. INTELLIGENCE AND UNDERSTANDING

The reader will doubtless have realised that in the account of the development of concepts given in the preceding section we have been dealing with a process which is intimately affected by a child's ability to understand and profit by the experiences which he has. Observation will readily show that some children learn much more from experiences than others who have precisely the same opportunities. Their percepts seem to be richer and their concepts and generalisations are more readily and accurately developed with less assistance from the teacher. Some of these differences can quite well be accounted for by differences in the sensory equipment of the children, as well as by differences in the zest with which individuals enter into relationships with their school environment. But these do not satisfactorily account for all the differences which one encounters among an ordinary group of children. There is an overriding mental factor which looms very prominently in the development with which we are here concerned, viz. the children's general intelligence.

Intelligence has been the subject of much research and paper warfare within the last few decades. The contributions of the

authorities are voluminous and somewhat baffling to the beginner. He will find definitions of "intelligence" as "the capacity to profit by experience," "the capacity to acquire capacity," "adaptability to new situations," "the ability to think abstractly," and so on. These are useful in their way, but they do not in themselves explain much of the way in which intelligence actually functions, nor do they suggest to the teacher definite lines of action which he can adopt in his teaching to make the best use of the intelligence which his pupils may possess. Professor C. Spearman's work, however, is probably the most suggestive for teachers. It arose from a scientific study of the performances of children in a wide range of abilities, such as solving puzzles requiring ingenuity on their part, detecting absurdities in statements, and inserting missing words in sentences. As a result of this research and of much further work, Spearman concludes that the ability to perform any particular mental operation depends upon two factors, a general one which he calls "*g*," and a factor "*s*" which is specific to that particular operation. For example, A's ability to do analogies¹ depends upon his "*g*," and on "*s*" his special ability for doing the particular mental operation involved in those analogies. What is more, everyone of A's mental operations depends upon his "*g*," which is a factor common to them all whatever their nature, and upon a range of "*s*"'s each of which is specifically geared up to its own particular mental operation.

The factor which Spearman calls "*g*" is a measure of that to which we popularly refer as "general mental ability" or "intelligence."² His contribution, however, goes further than this. According to him "*g*" is a measure of that quality of mind which is used in perceiving the significance of the ways in which one idea stands in relation to another, or to a group of ideas. It is this ability to grasp and appreciate these relationships which is

¹ The analogy type of test is a very popular one. The form is as follows :—

"As *yes* is to *no* so *black* is to —."

² Professor Spearman would probably himself not fully concur with this statement. He reserves judgment upon "intelligence" and its nature. "*g*" as used by Spearman is a symbol for a quantitative rather than for any qualitative aspect of whatever is concerned in this central factor of mental ability.

the basis of all understanding of experience and of higher mental development. The following example of an analogy test illustrates the working of the process.

“Hand” is to “finger” as “foot” is to “—.”

As the reader perceives the first two items—“hand” and “finger”—the relationship between them comes to mind to supply the missing item “toe.” This is only the simple relationship of “part to whole,” but it illustrates at the lower levels the whole principle of the “eductions,” as they are called, of relationships. The significant thing to note is that this power is an innate quality of children’s minds. Some minds are naturally endowed with keener educative powers than others, and that is why some children learn more from their experiences than others, i.e. they understand them more readily.

As children develop, their powers of eductions of relationships increase in range and complexity. The number of items which they can include within a single survey increases and they are able to make finer discriminations among more subtle relationships. Not only can they perceive relationships between percepts, but as their intelligence develops they can educe relationships between the relationships themselves. They can, for example, compare or contrast one general statement with another, fit concepts into systematised patterns of thoughts, change and modify these patterns according to the ways in which they harmonise or conflict one with another, and so on. It is in this way that the higher forms of mental life develop.

Many parents, and some teachers, endeavour to improve the intelligence of their charges in the belief that general mental ability can be developed through education and that a naturally dull child can be made “clever.” This is indeed something beyond their powers since the general mental ability is fixed and determined by nature and is not, according to Spearman, improvable by training. What can be done, however, is to arrange that children have every opportunity to use the intelligence which they possess to the very best advantage and thereby develop to the full their

special abilities, which are the developable factors. The key to this is to be found in the provision of a wide range of perceptual experience, so ordered that the essential relationships are clearly and repeatedly brought to the child's attention. The help which the teacher should give is best directed towards assisting the child to appreciate the more significant among the relationships involved, underlining and emphasising them in a variety of applications. In other words it should aim at making the school experiences as meaningful to the learner as possible.

Children who are naturally dull, i.e. possessed of relatively meagre intellectual powers find it extremely difficult to get away from the perceptual level and to develop through the education of relationships on the ideational plane. That is one of the reasons why practical activities are recommended as educational media for these pupils, since the only thinking of which they are capable requires the aid of immediate sensory experience and of physical activities to help it along. Thus, while a practical approach is, as we have seen, a most useful one for all types of minds to satisfy their immediate needs and to lay the firm foundations of higher mental development, it will remain the outstanding educational medium for the weaker types throughout their school course.

There is another aspect of intelligence which it is important to consider in this section. This is the way in which it works, not only in enabling the learner to appreciate the full significance of his experience but in providing the means for creative mental activity. In a sense, every fresh idea which enters one's mind is a creative thing in so far as it was not there beforehand. Here, however, we are referring to the ability to tackle novel situations or to develop some new item of knowledge from information we receive or from ideas which we already possess. The kind of mental activity involved in these situations is particularly well shown in problem solving, e.g. "We have received a grant of £5 towards the travelling expenses of a school visit. There are 32 children desirous of attending and the fare is 4s. 6d. for each child. How much must each child himself pay?" There are several ways of arriving at the new item, viz. the cost to be borne

by each individual child, but each involves the perceiving of certain relationships among the items of information we are given, viz. the number of children, the individual fare, and the limitation of the grant. Once, however, these are perceived and brought into relationship one with the other, the entirely new item of knowledge is produced. It is this fundamental method of using education of relationships to produce some new idea or fresh development which lies at the basis of all creativity of mind whether it is relatively simple or complex. Development of generalisations, solving of problems and reasoning are all processes of thought which are the products of this function of intelligence.

The mind uses the complementary methods of education of relations and education of "correlates," as the new fundamentals are called, at all levels. It used to be thought, for example, that children were incapable of reasoning until they were about eight or nine years of age. Parents of young children will realise how false a notion this is and how disconcerting the almost unassailable logic of their offspring is likely at times to be. The following example, though not particularly disconcerting, illustrates how forthright children's logical powers can make them :—

F.K., a girl aged $5\frac{1}{2}$ years, was playing with a mechanically propelled train in the presence of the writer and a lady relative. The latter somewhat imprudently remarked, "Freda ! Only little boys play with trains !" F.K. pondered a moment or two over this statement and then came out with, "I'm simply crazy over 'em. I *must* be a little boy !" Though the premise was faulty the child's part in the process would satisfy the most exacting logician. All children of school age, as well as many younger ones, are capable of reasoning and of creative mental work which is fundamentally of the same kind as that of adults. The difference between their reasoning and that of their more mature elders is one of degree rather than a difference in the kind of mental activity which is involved. As their powers of perceiving relations are limited so their powers of educating correlates are correspondingly restricted.

The teacher can aid in the development of children's creative powers by helping them in the education of relations which are essential to the problem in hand, by suggesting ways in which they can arrive at the solution by the use of apparatus, drawing material, measuring instruments, etc., and by helping them to an awareness of the methods by which they can, as it were, "tumble" to the required new ideas. Again the natural limitations of poor endowment will make themselves felt in this direction just as they do in the perception of relationships, and school methods for the duller children will be correspondingly modified.

D. MIND AND LANGUAGE ¹

Closely related to intelligence is the way in which a child's intimacy with his world is helped by his development of the power to express himself and enter into communication with others through the use of language. In the earliest stages spoken language is just the development, at the promptings of the baby's natural urge to communicate his desires to others, of the ability to make vocal gestures. His earlier cryings and babblings, accompanied by physical movements expressive of his emotional states, become disciplined through the imitation of his elders into an elementary language form. This later develops, as his experience and understanding increase, into the highly complex use of symbols, spoken or written or printed, which the mature mind employs when using the mother tongue. Many aspects of this developed form are obviously artificial, the products of man's inventiveness, but the basis of the whole complex structure remains the primitive bodily and vocal gestures which a child uses.²

There is a parallel development of children's intelligence and of their ability to use the symbols of language, i.e. of their power to associate sounds and "word pictures" with ideas. This development enables a child to increase his knowledge in a large

¹ See A. F. Watts : *The Language and Mental Development of Children* (Harrap) for a complete account of this important aspect of mental development.

² See Sir Richard Paget : *Human Speech* (Kegan Paul) for a scientific treatment of this theory.

number of ways. Language is a very useful supplement to perceptual experience, though it is not necessarily a reliable substitute for it. Words can act as stimuli which bring up to consciousness images of all kinds and set working whole trains of thought in the learner's mind. They can become the vehicle by which he can obtain indirect experience through the medium of books and by listening to his teacher, the wireless, etc. They can stimulate and sustain imaginative reconstruction of mental elements already in his mind.

One of the most valuable contributions which language can make is in the development of the learner's power to express himself. He can, through its use, ask questions about things which puzzle him. He can, moreover, express his own ideas and knowledge which he has gained. In so doing he will often effect a clarification of ideas of great value to him. The young teacher will realise the significance of this when he is himself confronted with the problem of expressing to others something which he himself thought he knew. Faced with the task of making explicit something which is implicit in a form of words which he may hitherto have accepted as thoroughly grasped, he will often have recourse to some very hard thinking and may have to do a good deal of probing and reasorting of ideas before he is satisfied that he has found a suitable approach.

It is the universal use of the mother tongue as a medium of communication between one mind and another which leads to the importance placed upon its study in preparation for teaching. Every teacher is a teacher of English in so far as nothing can be taught without its use by both teachers and pupils for the purpose of expression and comprehension. The really effective use of language is perhaps one of the most difficult things for a teacher to master. It can safely be said that its over-use by teachers has for generations been one of the outstanding defects of teaching. It has too often become the vehicle of a one-way process, teacher → pupil, a one-sided kind of conversation in which the former is too active while the latter is too passive. At the other extreme one sometimes comes across the exactly opposite view,

which is that the pupils are doing no work at all unless they are sitting writing practically the whole of the school-day.

There is one way in which inexperienced teachers sometimes run into difficulties. Failing to realise the teaching significance of the close relationship between thought and action and of the origin of language in gesture, they embark upon long and involved explanations of the meanings of words and phrases which are sometimes not very illuminating. They could often shorten these and make them clearer by "suiting the action to the word." For example, in what better way can "peremptory" be explained in the sentence, "He gave a peremptory knock upon the door," than by the teacher actually giving such a knock on a door or elsewhere? If his manner also can convey the *nemo me impune lacessit* attitude of the person who would give such a knock, so much the better. A little dramatisation, or use of gesture, provided it is done naturally and not overdrawn, will often economise in verbal expenditure and, what is more, convey the meaning much more effectively. On the pupils' side there is the whole range of play "making" and dramatic work which, for suitable subjects, are unexampled in their possibilities for developing their powers of expression, comprehension of language, and intelligent insight into literature and other studies.

E. INTEREST AND MENTAL DEVELOPMENT

In this and the preceding chapter, the physical and mental machinery which is at the disposal of learners has been considered, together with the ways in which it can be used to develop their knowledge and skill. As the teacher knows, or will very soon find out in practice, the mere possession of machinery of a certain type is no guarantee that it will be used effectively upon material which is, in *his* opinion, the most suitable. Children often appear to have ideas of their own upon this matter.

In this connection the writer well remembers one outstanding experience. He was at the time teaching in a school in dockland. One very hot summer's afternoon he had endeavoured to lead the

members of his very large class ¹ through the intricacies of the laws of flotation, aided by a bowl of water, a lump of wood, and the caretaker's flat iron. An uneven uphill struggle, which led the teacher to reckon the labours of Sisyphus a puny effort beside his own, had resulted in the teacher's declaring "a draw" and changing the "activity." After school a few days later, attracted by the general trend of movement among the children, the writer joined a crowd upon a neighbouring wharfside to witness of all things the efforts being made to salvage a local tug which had foundered there some time previously. These involved the presence of a diver complete with all the paraphernalia that go with his craft. During the school lesson that wretched tug had figured, in a half-hearted way, in what was intended to have been a discussion but, true to type, it let the teacher down and the discussion itself was "sunk." Here, however, on the wharfside were the majority of the members of that inattentive class, perfectly orderly in manner, conversing only in awed whispers, giving absolutely undivided attention to every item in the proceedings and not missing a single thing. What is more their interest was an active intelligent one, as the writer soon grasped as he edged amongst them to overhear their questions and the discussions which followed. They were the same children as those who had been so indifferent in school, yet there on the wharfside, stimulated by a problem in flotation in its real life setting, they had become inquiring, interested participators in events, observers imbued with the "will to learn."

The stimulation of children's will to learn is one of the prime concerns of a teacher for without it he can do little to teach them anything at all. In Chapter I attention was drawn to the fact that the motivation for all learning is to be found in children's emotional make-up, i.e. in the "interests" which they have or develop in their environment. At all levels in their development the motive power for the formation of percepts, for the eductions of relationships and the subsequent organisation of mental life,

¹ There were 68 "on the roll." Mercifully a few were usually away "minding the baby" or for some other very domestic reason. A "full house" always imposed a severe strain on seating accommodation but we very rarely had this experience.

for all in fact which they do¹ or think, is drawn from this source. An interested child is a learner, and it is the teacher's function therefore to use, in the teaching process, the interests which children have, and to lead them to develop others of value to them in their development.

Beginners often feel some doubt in their minds when they are enjoined to make the activities which they conduct in their classes interesting to their pupils. At first sight this may appear to run counter to other principles of teaching which place a premium upon the efforts which learners themselves must make in the process if it is to be worth while. The confusion arises from a possible misunderstanding of the term "interest" and from a tendency to take it as synonymous with "entertainment." Interest does not necessarily imply entertainment though the latter can of course be often quite interesting. In the technical sense "interest" is a feeling of "worth-whileness" of some object or situation, a realisation by the person concerned that it has meaning and significance for him. For example, the car bearing down on you as you cross the road, and the dentist's forceps are, in the strict sense of the word, objects of "interest," since they are certainly matters of very vital concern to you and full of meaning. What is more, they prompt you to take appropriate evasive action in the former case, and to adopt an attitude of self-sacrificing resignation in the second. Neither of these experiences could, however, for most people, be described as entertaining. At the other end of the interest scale there are absorbing occupations and experiences which are pleasurable, satisfying or profitable. These pursuits are considered worth-while in themselves though they may be energy-consuming and possibly quite fatiguing. The whole range of human endeavour is motivated by interests, for without these no development worth speaking of can be achieved. Children can learn nothing at all—they cannot, in fact, pay any useful attention to anything—unless they have some sort of interest in the experiences provided. When, therefore, it is asserted that teachers should make their work of interest to their pupils it is not the counsel of a "soft" or "easy" pedagogy which visualises a passage through the

garden of learning with rose beds all the way. Rather does it mean that teachers should select activities and experiences which are of vital significance for their pupils into which these can enter with full knowledge of the purpose and value of whatever they are called upon to do. This should lead not only to pleasurable occupations but to some really hard and serious application of their energies. Children, like all of us, need the discipline of a steady cumulative concentration upon work which they should come to regard, not as an irksome externally imposed restriction of their natures, but as an outlet for energy to be used in the pursuit of worth-while objectives.

A similar confusion to that which we have noted here sometimes colours the criticisms and vitiates the applications of the so-called "Play-Way" in education. Strictly speaking the play-way is any method in education which uses the play energies of children in the service of their own education. The play tendency is one of the natural patterns of behaviour with which children are endowed (p. 13). In the biological series it is significant that its emergence marks the beginnings of educability.¹ It is in and by means of play-activities that children explore their world, and make the experiments in self-development which modify the basic patterns of their inheritance. The play-way seeks to utilise this perfectly natural function and to direct it for educational ends. Properly understood and wisely conducted, it is not a frivolous proposition, but one of high seriousness leading to the direction of children's activities through their natural interests. During the course of its conduct much serious work is undertaken by willing pupils, in meaningful situations, resulting in physical and intellectual development of permanent value.

¹ The lowliest forms of life exhibit no "play period" in their development. Insects and the like spend their lives at all stages upon the serious business of living, and practically no modifications of these patterns of life are made possible by training. "Performing" fleas, for example, do not "perform" at all. They are merely harnessed so that their reflexes make them appear to perform. Higher up the scale "play"-periods appear, e.g. in puppies and kittens. A certain amount of modification of innate patterns is possible, and training is an important item in their development.

Dramatic work, practical experimentation in science where pupils engage in discovery, visits to places of historical interest where simple researches are carried out amid surroundings of vital significance, are but a few of the types of highly valuable educational activities which are pursued in the spirit of the play-way.

The key to the arousal of the interests of pupils in their school work is to be found in the innate patterns of behaviour which are important features of their endowment (p. 12). As we have already seen, their physical and mental processes are the means by which they attack their environment while the driving force behind them derives from the will to live. This manifests itself in the instinctive tendencies which we have already considered. It is, therefore, to these, in the forms in which they appear in school children, that we must look for guidance when seeking incentives to learning. It must be remembered, however, that by the time children reach school age these innate tendencies will have been very extensively developed and modified through their experiences, and what can at first sight be recognised so easily in a textbook may not be quite so clear-cut and readily distinguishable in a living schoolboy or schoolgirl. These tendencies, moreover, the sources of interest which we seek to tap, do not lie in children's make-up as separate entities, neatly docketed and pigeon-holed, ready for us or for them to lay hands upon. In the course of life they become inextricably interwoven, organised into systems manifesting themselves as likes and dislikes, which are extremely complex and contain within their organisations a wide range of emotional elements. For example, a child's interest in making a model, say of an aeroplane, may derive primarily from his natural urge to construct things, but the selection of what he makes is affected most intimately by his interest in aeroplanes, and a number of other interests can quite conceivably have entered more or less forcibly into the motivation which started him on the job. He may, moreover, while engaged upon the work, identify himself in no small measure with the model and the whole vast complex of emotions built up around his "ego"—his self-regarding senti-

ment—may be involved in the activity.¹ The plane is *his* plane, a bit of *himself*, and one may quite well injure his self-respect by damaging the model, ignoring it, or even by speaking disrespectfully of it. This is but one example, and a relatively simple one, of the complexity of the emotional drives with which the teacher is here concerned.

Successful teachers, however, succeed in tapping the natural sources of children's energies and in using their natural modes of expression for educational purposes. By working *with* rather than *against* nature, and by providing activities which appeal primarily to their children's instinctive tendencies they stimulate in those pupils the will to learn. Particularly useful are those of self-assertion, construction, collecting and investigating, the emotional components of which provide powerful interest-appeals. With older children their developing protective and gregarious impulses will lead to many acquired interests of social value. The fighting impulse deriving from anger at frustration can be drawn on indirectly² to conquer difficulties encountered in studies and in the conduct of competitive games, while the impulses deriving from the sex instinct in adolescents, which are themselves mainly creative in character, can in part be utilised indirectly in inspirational creative school activities.

When the teacher begins his practical work he will discover that what we are considering here probably constitutes one of his outstanding problems. Teaching after all is mainly concerned with causing others to learn, and this cannot be effectively achieved

¹ An H.M.I. once told the writer of an experience which illustrates this very well. He was campaigning at the time to raise the standard of handicraft by getting children to adopt a critical attitude towards their own efforts. Chancing upon a particularly bad model made by a senior boy he began by asking the lad what he thought of it. "Jolly good, sir!" was the enthusiastic reply. Then piece by piece he got the lad to admit defects here, there and everywhere. "Well, what do you think of it now?" he asked. The dejected lad replied, "The ——— thing's no ——— good at all!" This, in the presence of so august a person as the H.M.I., surely indicated that some very deeply seated springs of emotion had been touched.

² This is technically known as "sublimation." It is a process whereby impulses derived from one instinctive activity which is not a possible or approved vehicle for expression, are redirected into another similar activity, wherein they can be expressed.

unless the learners take an active part in the actual process. The teacher will therefore be very much concerned with ways in which he can draw upon the sources of energy which the pupils have at their disposal. It is, moreover, not sufficient for the teacher merely to get the attention and stimulate the interest of the pupils at the starting-point of an activity. Their interests must be kept alive and developing throughout the lesson or their attention will very soon wander off into the many other competitive channels which seem to be always at hand, e.g. the forthcoming football match, Brown's new pen, Jones's unruly head of hair, or the song which the neighbouring class is singing. Teachers, therefore, are intimately concerned with the practical necessity of keeping the activities developing in their classrooms. Useful ways of doing this are by making the work purposive so that the children realise why they are doing it and what objectives they are striving for, by arranging settings for the activities which are as like the "real thing" as possible, and by varying the type of activities involved so that they are not likely to bore the children by over-staying, as it were, their welcome.

All school work cannot, however, be expected to carry within itself material of intrinsic interest for the children. There are bound to be rocky patches in the field of learning which must be cleared and which involve the use of will power on the part of the pupils. The difficulties can often be eased, if not entirely overcome, by the teacher's arranging that this work borrows an interest from other sources. The use of individual and group competitions and of games, e.g. the number games so effectively used by infants' teachers, spelling bees, or the quiz, will very often aid materially in carrying the learner over the "dead" points in the learning process. There is one incentive to which, in conclusion of this section, a reference might be advantageously made. This is the one-time extensively practised incentive to learning which involved the avoidance of punishment which followed failure to learn anything. Penalties of an unpleasant nature did act as powerful incentives and many unwilling pupils did apply themselves to their "lessons" because it was less uncomfortable to do so

than to incur those penalties. The avoidance of the unpleasant consequences of not learning can prove a powerful incentive to try to learn. The trouble is that the unpleasant nature of the motive force tends to colour the attitude of the learner not only to what is learnt but also to the whole unpleasant business of learning and to the person who drives him by the use of this incentive. The result is likely to be a distaste not only for the subject but also for the teacher and possibly for the whole of school work. The results, too, of learning under these conditions are not likely to be so permanent as those which are willingly acquired by learners who have an interest in what they are doing, i.e. in the actual work itself. One of the most important objectives of learning in schools is the development in the pupils of permanent interests which will extend beyond school-days and become abiding possessions of value to them. The use, therefore, of the kind of incentive to which we have here referred is not nowadays considered to be a mark of high technical skill on the part of the teacher who has to resort to it.

F. PERMANENCE OF LEARNING

One of the characteristics of children's learning, which very soon strikes a teacher, is the variability from one child to another of the permanence of what is "learnt" in school. Some children seem to be able to retain with ease most of the things they are taught and to recall them whenever they are required, while others seem to be endowed with an in-at-one-ear-and-out-at-the-other type of memory. One sees, too, how a child who can remember facts of one kind, e.g. historical or geographical facts, may possibly have the greatest difficulty in remembering other things, e.g. tables or spellings, while another with a comprehensive memory for film and radio personalities and their doings, may forget with ease the names and contributions of scientists and authors about whom he hears and reads in school.

This variability in retentivity can, to a certain extent, be explained by the varying interests which different learners may have in the subjects they study, since the interest factor is always, as we have

seen, a most influential one.¹ But this is not quite the whole of the story.

The complete psychology of remembering and forgetting is a vast subject in which a great deal of experimental work has been done. It is not our purpose here to pursue it in detail but rather to indicate the most suggestive corollaries of help to the teacher in his practice.

Memory can be attributed to that quality of mind by which the effects of previous experience are wholly or partly brought to bear upon the present mental life. On the physical plane we have seen a parallel development in the way in which the fundamental skills are used as the materials from which the more advanced and complex types of activity are developed. On the mental plane one notices the same kind of dependence of the present upon the past. New knowledge is acquired on the basis of the old, while the relatively highly developed patterns of thought are dependent upon those of a lower order. Expressed in terms of the example with which we began this inquiry (see p. 32) we can say that the writer's mind can only be free to think out what he shall write if he "remembers" how to sit at the desk, how to manipulate the pen and the paper, how to spell, how to express himself and what it is he wants to say. Here we see quite a variety of different types of "memories." Some are of the order of habits, e.g. spelling and phrasing, and others are of the type which relies upon the intelligent understanding of what he is actually writing about in his letter or exercise.

This leads us to a classification of memories which is useful since, although these memories come in the first place from the same fundamental quality of mind, they present different teaching problems. First there is that kind of remembering which so closely

¹ In this connection the writer remembers the case with which his IVth forms used to recall the deductive proof of the Theorem of Pythagoras. For the first time in a study which seemed to concern itself with "proving the obvious" they came across something for which they found a use, something new and arresting. They therefore tackled a relatively difficult proof with zest and mastered it, while the simpler previous theorems often proved stumbling blocks because to them they seemed so purposeless. Here the difficult was remembered while the less difficult was forgotten, or rather, never really "learnt."

resembles the physical habit, e.g. the way in which spellings, tables, historical dates, definitions and the like are remembered. An intelligent understanding of the relationships among the items, say, of a multiplication table, is an excellent starting-point. The actual learning of the table is performed in the same way as a habit is developed, i.e. by the repetition of it over and over again so that the links ("associative bonds") among the items are firmly established in the mind of the learner. The practice is conducted verbally and in writing and will be effective in so far as the learner puts his efforts into the learning and is interested in it. The final result of the practice is that the items are so familiar that they become a pattern of thought to be called on at any time in any connection, ready to serve the learner's purpose. The second type of memory is somewhat different, not only in the way in which it is formed, but also in the way it functions. For example, we have memories of such things as plays or films which we have seen but once, yet the themes of these works stand out quite clearly in our minds. We also remember well certain vivid experiences which we have undergone, friends we have known and novels we have read. The elements of these memories are clearly defined but are largely a matter of images and ideas bound together by associative bonds which are coloured by emotional experiences. They are not so narrowly and specifically patterned as the memories of tables and the like. Less "self-registering" but sharing with the foregoing the same quality of existing without narrow limitations of patterning are the concepts and knowledge which we develop in our studies, e.g. our knowledge of scientific and mathematical principles, our ideas of methods of study, of the personalities we read about and so on. These memories are the products of our intelligent handling of experiences and depend for their permanence upon a number of factors. Among these are the vividness of the original experiences, the understanding of their significance and the qualities of the emotional life which was aroused.

The reader will have realised by now that much of the foregoing is familiar and that he has encountered it in connection with

other topics in this chapter. This suggests the conclusion, and it is a perfectly sound one, that permanence in learning is assisted by good teaching methods which conform to the natural development of children's physical and mental powers. The better we teach, the easier the children learn and the longer they will be likely to remember what they learn. This is a perfectly sound guide for the teacher, but there are one or two characteristics of memory which may possibly prove pitfalls unless their nature is realised.¹ Memory has a way of playing tricks. At times the associative bonds seem to fail completely when we try, with all the effort of which we are capable, to recall some items which we need. Then later, in an apparently capricious way, our minds offer us the "missing" items without our making any effort at all and when we have no immediate use for them. The formula which we struggled unsuccessfully to recall in the examination room rushes to our minds as we board the home-going bus, or the answer to the very pertinent question which we could not give during a lesson comes flashing up with remarkable clarity as we make a stroke at tennis several days afterwards when the whole incident has apparently dropped completely "out of mind."

The explanation of these vagaries probably lies in the threefold nature of an act of memory. When, for example, anyone uses some item of knowledge which he learnt some time previously three things must have occurred :—

1. He must have *acquired* that knowledge in the first instance.
2. It has in the meantime been *stored away* in his mind.
3. He has been able to *re-collect* it from the store for his present use.

Teaching concerns itself directly with the first phase and there is evidence, as we have noted, that the third is directly influenced by the nature of the first. Teachers can, moreover, facilitate the third phase by suggestion and the presentation of "cues" likely

¹ On more than one occasion the writer has had ex-students return to him almost in despair because after a few months' teaching they had found that, in spite of their use of the latest techniques, their pupils appeared after a short lapse of time to remember little or nothing of what they had "taught" them.

to assist the child in his efforts to recollect. The second phase, however, is one which presents a difficult problem for the teacher since he can establish no direct contact with his pupils' mental stores. He can only indirectly get to know anything about them by the evidence which he gets from phase 3, i.e. what they are able to recollect. What happens to ideas in the mental store is not at all clear. One thing is obvious, they do not lie static in that store like parcels in a cloak-room waiting to be called for when wanted. Ideas are living things and their existence is accompanied by developments affecting their accessibility. Some ideas come readily and easily to consciousness as they are required, others are more difficult to recover and often have to be searched for at some length, while some seem to be totally beyond recovery by ordinary means.¹ These "lost" or "forgotten" mental elements do not, moreover, cease in all cases to have any influence upon mental life. They can and do make their influence felt upon those ideas which are recoverable. Moreover, many of the "forgotten" experiences of childhood may affect our mental attitudes to present experience in a very powerful way. Many of the words, for example, which we use in our speech obtain their meanings not only from conscious associations, but from complex organisations of forgotten mental elements upon which these meanings depend.

The strength and nature of the emotions accompanying an original experience tend to affect not only the extent to which memory of it is fixed but also the effects which it can have if it is forgotten. We tend to remember pleasurable and successful experiences and to forget those which are unpleasant or in which our personal failure was involved. A merciful veil of obliviscence is drawn over the shocks and scars which unpleasantness brings. Behind that veil, however, the activities of the "lost" elements are unpredictable. Russian teachers in 1944 reported how they found many educational problems arising from this source among

¹ Psycho-analysis is the science which is concerned largely with the investigation of the "unconscious" mental life by means of a special technique. In practice it has been found that many ideas which, in the usual sense of the term, can be written off as "forgotten" can be brought to the focus of consciousness by this technique.

children in the recovered areas. The *sequelæ* of the violent emotional experiences and physical deprivations of these children included most unexpected mental responses to ordinary stimuli¹ which indicated not only chaotic conditions in their associative processes but also interference with the normal workings of conscious intellectual processes. On a much less tragic scale, but nevertheless functioning in a similar fashion, are the forgotten failures and unpleasant experiences of most pupils' childhood which are frequently accompanied by very intense emotions. In the big majority of cases they do not cause definite abnormalities but they may possibly account for many little idiosyncracies and deviations in pupils' abilities to remember.

The problem, therefore, of the permanence of learning is seen to be one which may involve factors which are outside the teacher's control. Those, however, which do fall within his powers to affect are very influential for most of his pupils. Research helps us further with the following contributions of practical significance.

Recency and Frequency.—The ability to recall ideas to mind is affected by the *recency* and *frequency* of the experiences from which these ideas originate, e.g. we are more likely to recall something which happened this morning than to recall a similar experience of a week ago, and we are less likely to forget something which forms a part of our daily routine than we are to forget something to which we are very rarely required to attend.

Rate of Forgetting.—When children forget what they learn the forgetting is done very soon after the original learning. That they forget at all suggests a need for revision of their work, but the fact stated here indicates that this revision is most likely to be successful if it is first undertaken very soon after the original learning. Research also shows that permanent retention of material which has

¹ E.g. the ordinary school methods produced in some cases violent negative responses. Music, games, and cheerful society were often met with intense emotional irritability. A completely irrational attitude to food hoarding and to food in general was noted which manifested itself in responses which ran counter to the ordinary processes of intelligence. Stimuli of an ordinary nature, such as a simple social request to move a chair, would result in an irrational outburst of crying.

been learnt can be aided by revisions which are repeated at progressively increasing intervals of time.

Reminiscence.—In his *Reminiscence and Obliviscence* Dr. P. B. Ballard gives a notable exception to the above. He found that in memorising poems school children remembered more after a lapse of two or three days than they did at the immediate conclusion of the learning period. After an interval they lost some parts of the poem but gained others. The total profit and loss account showed a credit balance. This suggests that learning of a sort can go on with material of this kind below the threshold of consciousness for a period. After that, unless revision takes place, there is the normal obliviscence.

"Whole" and "Part" Learning.—Research shows that it is better for children to learn a poem of suitable length by repeatedly reading the whole of it through than by the piecemeal method of learning a line at a time.¹ There is not much saving of total time by "the whole" method of learning but the amount retained is superior. If in the future children are required to relearn a "forgotten" poem it will be much more easily done with fewer repetitions if the "whole" method rather than the "part" method is employed in the original learning. There is the added advantage that if children try to recall a poem learnt by the "whole" method they are not held up irretrievably by broken links as they are with poems learnt by the "part" method. The associative bonds seem to be much more influenced by meaning and the flow of ideas in the former case than in the latter, where the habit formation depends upon linkages among immediately succeeding verbal elements.

One last word upon the subject of the permanence of learning. Young teachers are frequently depressed when they realise the ease with which children appear to forget what they have been "taught." The experienced teacher, however, is on his guard

¹ Experience with school dramatics inclines the writer to believe that many children naturally prefer to learn prose passages by the "whole" method. As one 14-year-old girl put it, by this method "you can get the general sense of what you have to say and then, if you read it over a few times, this seems to carry it along and tell you what to say."

in this respect in two ways. First, he knows that the effects of teaching are to be measured upon the learner's side and that what is "taught" has not necessarily been "taken" and assimilated. He is content to hasten slowly in this respect, consolidating the children's advances, and basing them on securely laid foundations. He is never content with the immediate responses which he gets at the end of any learning activity. He returns to the subject at the first possible opportunity and checks up on the pupils' responses before he proceeds further. He knows, too, that knowledge which is put to use in subsequent work gains interest and prestige in the children's eyes, and he never misses an opportunity of strengthening foundations by using them in subsequent work. Secondly, however, he realises that "forgetting" is a natural and very necessary process. A mind which was encumbered by detailed memories of every experience which its possessor had undergone would be not an asset but an unbearable liability to that person. That children in school seem to forget the wrong things is certainly exasperating at times, but experience shows that in every relearning of anything, the effects of previous learning make themselves felt. Experienced teachers take consolation in this and patiently and persistently organise their work accordingly.

CONCLUSION

We have in this and the preceding chapter surveyed in outline what is usually known as the psychology of the learning process. In pursuance of the search initiated in Chapter I into the nature of the material with which the teacher has to work, we have indicated the main characteristics of the mental and physical machinery which children have at their disposal and of the more important features of the development of which this endowment is capable.

In the chapters which follow a further examination is made of the ways and means by which the teacher may so organise and direct the activities and experiences of his pupils, that their learning may proceed as economically and effectively as possible along natural lines, in accordance always with the objectives of the art of teaching which were indicated in Chapter I.

CHAPTER IV

INITIAL TEACHING PROBLEMS

IN Chapters II and III some of the main features of the ways in which children learn were examined. In this chapter we turn to some of the more important problems which confront a teacher when he first comes to deal with these processes in actual practice.

When the reader commences his practical work he will probably be confronted with a class of pupils. The class, the traditional "pupil-unit" in our school organisation, is a legacy from the last century when the rapid spread of popular education involved the teaching of large numbers of children by comparatively few teachers. Its popularity as a unit for teaching purposes has tended to decline in recent years, and there are some who claim to see in modern developments the doom of class teaching. The class, however, still remains a most convenient unit for organisation and for some aspects at least of teaching. The teacher's first problem is to get to know his class as a unit which has an individuality of its own. This will show itself in certain characteristic modes of behaviour and in its attitudes to authority and to learning. He must, moreover, be able to handle it for some purposes as a unit. His responsibility, however, as we have already seen, is ultimately for the development of the members of the class as individuals. He must therefore get to know as much as possible about the pupils as individual personalities as well as about them as members of a group. These two aspects of the human material with which he works are most important factors to consider when he comes to make up his mind as to what he will do in the classroom.

His second main problem is to know what to teach the pupils assigned to him. Upon the selection of the most suitable material

for these particular learners the success of his work will largely depend.

His third problem is to determine the actual methods which he is to use in the classroom, the organisation of the work for the learning and teaching which are involved, and the particular techniques which are most likely to be of use for his purpose.

These three problems are dealt with separately for the purpose of convenience in the account which follows. It will be obvious from the contents of the previous chapter that they are very closely inter-related, e.g. the methods which a teacher can usefully employ depend very largely upon the kind of pupils he is dealing with and upon their particular requirements.

There is a fourth problem which will very soon become obvious to the teacher in the actual conduct of the activities. This is to set up and maintain the conditions which are an essential prerequisite in the classroom for the work to be carried on, viz. the maintenance of order and discipline. This is dealt with in Chapter XII.

I. The Learners

The Class.—A class is a group of pupils who have been brought together by reason of some characteristic or characteristics which they have in common, e.g. age, intelligence, school attainments or previous schooling. These pupils form a community which is more or less firmly knit together as a living organism through the participation of its members in common pursuits and experiences and through their development of common interests. The class is more than a mere aggregation of the individual qualities of the individual members. It has a characteristic life of its own which is of great concern to the teacher in his handling of the classroom situations which are involved in teaching. Although, therefore, his own personal observations of the class are of supreme importance, he would be well advised to seek some information from other teachers who are acquainted with its history. This will often enable him to appreciate the significance of a number of circumstances which would otherwise be inexplicable, or which might be only slowly revealed through personal observation.

Among other points he would do well to find out the following :—

- (i) The average age of the pupils.
- (ii) The general estimate of previous teachers as to its capacities as a class, i.e. as to its “teachability.”
- (iii) If the school is classified into “ability” streams (“A,” “B,” “C,” etc.), the stream to which it belongs.
- (iv) Its previous history, e.g. whether it has recently been re-organised or reclassified; whether it has been taught by one teacher continuously or by a succession of different teachers.
- (v) Any peculiarity or special problems which others have experienced in dealing with it, e.g. those arising out of social and economic conditions of the pupils’ home environments.
- (vi) The general health and school attendance records of the class.
- (vii) The part which it plays in the general school life, e.g. whether it takes an active part in school societies, its “standing” in the eyes of the rest of the school, the part taken in games, etc.

If the teacher obtains as much as possible of the above-mentioned information, preferably from teachers who have had practical experience with the class, he will have some background to work upon in his contacts with them. He will have less to find out and a clearer idea of the nature of the problems which face him at the outset. He may, of course, have occasion subsequently to differ from the opinions which others have formed of his class in the light of the experience which his practice will afford.

The Individual Pupils.—Though the members of a class have been brought together on the basis of some common characteristic, each of them possesses his own particular personality. The teacher therefore, in order to discharge the responsibility which he has for the education of each of the individuals assigned to him, must get to know them as individuals. Only by so doing can he hope to arrange the pupils’ activities so as to make due allowances for the individual differences in physique, intelligence and temperament which he finds among them. His ultimate aim should

be to obtain by personal observation, aided by records, as complete a picture as possible of every individual's characteristics, e.g. of his intellectual abilities, of his attainments, of his health and physique, of his interests and temperament, of any special home or social conditions affecting his progress, and of any special features such as prolonged absences from school, frequent changes in schools attended, etc. This is obviously asking a great deal of the teacher, unless there are sets of records available. At the outset therefore, he is advised to concentrate upon a few essential items and to seek information from others upon such points as the following :—

(i) *The Names of the Pupils.*¹—These can well be entered up on place plan of the class. The teacher's knowledge of the names of individual children in his class will enable him to establish a more personal contact with them than the impersonal kind of relationship which comes from such indications as "the girl in the second desk from the back," "the boy with the grey sweater," "you," and so on.

(ii) *Any features of individuals or groups of individuals in the class which are likely to present special problems to the new teacher,* e.g. :—

(a) *Differences in Intelligence and Attainments.*—It may well be that complete records of the results of objective measurements such as intelligence tests and tests of educational attainments are available. If, however, these are not to hand the teacher should seek information as to the "best" pupils and the "worst" in the class. An examination of samples of the work which has been done, of exercise books, etc., will give him a good idea of the range of abilities and attainments with which he will have to deal, as well as of the general standard of the work so far achieved.

¹ There is something very intimate about the use of a name by a teacher. It seems to strike deeply into a child's personal life. If his name is ridiculed, or if any one makes a verbal play upon it, he is liable to feel very injured. Groups of children sometimes exploit this when they call out his name in chorus after an unpopular schoolfellow. "Old Jonesey!" if he is at all sensitive, seems to feel his inner life dragged out and exposed to the vulgar gaze in a most humiliating way.

In the absence of any help at all from the sources suggested above, a simple written exercise in English will provide a very good general guide as to the kind and range of ability and attainments with which the teacher is concerned.

(b) *Special Physical Characteristics*.—It is helpful to know of any pupils who are labouring under difficulties attributable to such defects as partial deafness, or defective vision awaiting correction, as well as of pupils who need watching in school by reason of any predisposition to illnesses which they may possess (e.g. epilepsy, chorea, hysteria). One can then be ready to arrange suitable conditions for the former, and foreknowledge of the latter helps to avoid that dreadful feeling of being at a loss to know what to do when something unusual happens.

(c) *Temperamental Characteristics*.—Individual differences in these respects are extraordinarily varied among the children of any group. The richness and range of the variations probably account more than anything else for the interesting nature of human personalities. It will take the teacher a very long time to make anything like a working survey of every member of his class, and even then a great deal will be left undetermined. It is useful, however, to find out from other teachers whether there are any individuals who are labouring under temperamental conditions which necessitate their careful handling by the teacher. He is then fore-warned in his treatment of children who may be unduly sensitive, extremely shy, or emotionally unstable. Speech defects are often associated with emotional troubles, and an early indication of children suffering from these is helpful.

(d) *Home Circumstances*.—A child's out-of-school life may help him in his school work, but where the circumstances are difficult they may exercise a cramping influence upon his progress.¹

¹ The regulations governing the employment of children of school age are very much more strict nowadays than they were some years ago. In one school in South-East London where the writer taught quite a third of the top class used to fall asleep during the afternoons. Inquiries established that before coming to school in the morning these boys used to rise between 4 and 5 a.m. every day to help their mothers clean out the City offices where the latter were employed as charwomen.

[Continued at foot of next page.]

Economic circumstances, social conditions, and the nature of family relationships at home are important factors. A knowledge of any cases in his class in which these factors are exceptionally adverse will enable the teacher to understand the particular children better and possibly to aid them in getting the best out of their school work.

II. What to Teach

CLASS SYLLABUSES

The teacher will probably receive some assistance in the selection of the material which he uses in his teaching from the syllabuses which have been drawn up in the several subjects for his particular class. These are usually the result of the experience of others in teaching children of the particular type with which he is concerned. They are frequently well designed and offer suitable material. The amount of detail which is to be found in them varies considerably from school to school. The general tendency nowadays is to express them in general terms, with possibly a broad indication of the way in which the topics are to be approached, e.g. "The properties of oxygen and composition of water (treated as an oxide of hydrogen)"; or "The multiplication and division of decimals, using the standard form." In many cases the topics only are given in a bare statement, e.g. "Interest,"

Under present conditions a limited amount of out-of-school employment is permitted. Opinions among teachers differ as to its effects upon school progress. Some maintain that it may involve regular out-door exercise which is of definite value. Others condemn it wholeheartedly. A survey which was conducted in one suburban school revealed that over a number of years, the "C" classes contained a considerably greater proportion of "employed" children than did the "A" or "B" classes.

It appears to the writer to be wrong to draw any definite inferences from the above survey as to the actual contribution which the employment made. Other factors are involved which may render the influence of the employment a minor one. The explanation is probably to be found in (a) the reasons (home circumstances, economic status, etc.) which compelled the children to work, and (b) the nature and conditions of the work itself. The writer taught over a period of years the sons of various Sussex farmers. These lads were of excellent physiques and their homes were as a rule quite "comfortable." They often did a great deal of farm work, travelled long distances to the Secondary School, and made very good progress in their studies.

"The French Revolution," "Principle of Archimedes." To a greater or less degree, therefore, the individual teacher will be responsible, within the limits set, for selecting the illustrations he will use, the exercises he will employ, and any demonstrations he will perform, as well as for determining the scope of the individual learning activities which he will conduct.

A text-book is sometimes mentioned in a particular syllabus. This will certainly narrow down the teacher's task, but the extent to which any text-book is suited to the particular needs and capacities of the children in his class will naturally affect his use of it. It must be remembered that text-book writers have to write for that somewhat hypothetical and elusive young person, the "average" or "typical" pupil of the grammar, the technical, the modern secondary, or the primary school, as the case may be. The children with whom the teacher is immediately concerned may or may not approximate to the "average" which the text-book writer had in mind when he wrote the book. The teacher may therefore need to make careful selections from it, or supplement it from other sources before he can make profitable use of the material which it contains.

When presented with a section of a syllabus to be covered in a period of practical teaching, it is most important for the teacher to examine the whole syllabus to ascertain the relationship of the section which has been selected to the rest of the work. What the children have done previously may be essential to the new development. The way in which the present work is conducted may be greatly influenced by what is to follow. Coherence in teaching is most important, and syllabuses are usually designed with this in mind. Where a syllabus consists of a number of unrelated topics it is usually a poor one.

A point of practical significance for the teacher is that though he may be informed that the children have "done" or "covered" certain portions of a syllabus, he should not assume that this implies that these have been thoroughly mastered. Many beginners run into difficulties because they design developments which rely upon shaky foundations, and the best laid schemes in the teaching process

are liable to be frustrated by assuming too much in the way of back work. One can never be absolutely certain about the pupils' mental content at the beginning of an activity, without actually testing it for one's self. The teacher, therefore, should take the first possible opportunity of actually checking up on the pupils' knowledge of any essential background work upon which he is relying.

SCHOOL CURRICULA

The class syllabus in any subject is an instrument of the school curriculum. It indicates the kind of work in any particular school activity which the pupils of a class will be doing for a portion of their course. The pupil, however, who is now in the second class, was once probably in the first, and in due course he will presumably pass on to the third, and so on. Therefore the class syllabus must be considered as a part of the whole course in any school activity, while the latter must in turn be viewed as a part of the whole parent curriculum of the school, i.e. of the complete educational facilities which are provided for the pupils in the school. While, therefore, the class teacher may not be immediately concerned with the curriculum, he is concerned with a portion of it which vitally affects the pupils whose whole education is ultimately affected by that curriculum. In selecting his material he must pay regard to the whole purpose of that curriculum if he is to enable the pupils to obtain full benefit from their work.

The curriculum of any school is a design for the education of a particular community of young persons which aims at providing for them a continuous and progressive course with definite objectives in view. It should be based upon some well-established principles. Of these perhaps the most important is that *the curriculum should serve the immediate educational needs of the particular pupils for whom it is designed*. Broadly speaking children's developmental needs are of three kinds :—

(i) physical, (ii) social, and (iii) mental and spiritual.

Their physical needs arise from their natural urges to master the movements of their own bodily machinery so as to enable

them to move about in their world, and to manipulate and explore their environment as well as to construct things by the aid of instruments, tools, etc. Children's social needs derive from their gregarious impulses which are the foundations of their sociability and of their personal relationships with their fellows. Their mental and spiritual needs centre around the craving for the inner satisfaction which comes from increased mental control of their own physical powers and of their world, from their fuller appreciation of the significance of their experiences and from the expression of their creative urges.

A second important principle is that *the curriculum should help to equip the children for their subsequent lives as adult members of the community*. We have already noted the dangers of always considering any stage of development merely as a preparation for the one to come after it (see p. 27). This second principle does not fall into this error if it is applied in a way which is consistent with the first principle mentioned above. The immediate needs of the pupils must always take priority over any other claims. There is, however, a great deal of common ground between the immediate requirements of children and those which they will experience as adults. The satisfaction of a child's urge to develop his physical abilities, to express his social impulses, and to improve his mental control and understanding of his world will form an excellent background for the subsequent satisfaction of the typical demands of adult life, viz. the practical and vocational, the social, and the cultural and spiritual. The child's interests, moreover, extend to adult activities which form an important part of that world he seeks to master. These activities therefore may well form some of the content of the experiences which can be used in his education with this important proviso, that they are viewed always through his eyes and in relation to his own immediate requirements. Provided, therefore, that a child's short range needs are never neglected, his educational experiences can well include much that will be of great value in preparing him for the fuller responsibilities which he will be required to assume later as a mature member of society.

The curriculum which the teacher is likely to find in any particular school is very probably not one which has been deliberately planned in accordance with the principles we have here examined. Most curricula are the products of a process of growth in which the influences of tradition, of official regulations, and of the individual contributions of teachers and educational advisers have played most important parts. The general tendency of all these influences has, however, been towards curricula more or less in conformity with these aforementioned principles. The trend in the development of modern curricula has been towards making them fit the pupils rather than, what was at one time common, the reverse process of making the pupils fit into a particular pattern. With greater or less success, according to circumstances, the curricula which we find in schools are designed with especial regard for the capacities and requirements of the particular pupils who attend those schools.

There is much in common in school curricula within the several types of primary and post-primary schools. For example, the need for health education is recognised in all types of schools. Literacy is universally accepted as one of the most important objectives of the primary school, and the teaching of the mother tongue as a spoken, written, and read language, together with the teaching of the basic number and other quantitative relationships essential to modern living, are universal features of all such schools. These are sometimes referred to as the "instrumental" subjects, the means whereby all other educational activities are approached. There is less agreement as to the need for teaching a modicum of physical skills which might form, so to speak, the basis of "physical literacy." No one has yet drawn up an ABC of these skills, and it is highly probable that it would be undesirable to teach them as a separate "subject." They do, however, constitute a most important nucleus of educational accomplishments which are in a sense "instrumental" to the whole learning process.

When one comes to the other activities which are conducted in primary and post-primary schools, one does not find the same measure of agreement as that which exists in the matter of fundamentals. Generally speaking these activities are drawn from the

basic human traditions which are the products of man's life in its relation to the world in which he lives. They represent the ways in which man during his development has, on the physical level, handled and recreated his environment to serve his purposes, and on the mental and spiritual level, conducted himself in relation to that environment. Art, craft, music, religion, literature, science, mathematics, history, geography, etc., are forms in which his physical, mental and spiritual creative energies have found expression. These are the answers which he has found to his fundamental human needs. It is reasonable therefore that schools should seek the solution of their problems among these characteristically human expressions since there are really no other sources. The so-called school "subjects" of the curriculum are the particular forms which these activities assume in the classroom. Seen in this setting, however, they appear not as material to be "learnt" and remembered for examination purposes, nor as something which the teacher must force upon unwilling students, but rather as worthwhile pursuits to be followed by active interested learners. To present them in this guise in the classroom it is essential that each subject should be viewed from the pupil's standpoint, that it should be real and vital to him, and that he should pursue the study of it as an objective which is for *him* something worth-while.

Selection of Matter.—While the teacher will be required to accept the curriculum which he finds in a school as it stands, his interest in it derives from his need to make his contribution to any part of it a really vital one. He should therefore endeavour to work in the spirit of the curriculum which is indicated here and to appreciate as quickly as he can the following points :—

(i) The purpose of the particular curriculum of the school with which he is concerned, e.g. for what type of child does it cater? What are the chief objectives it seeks to attain?

(ii) What are the immediate objectives of each of the activities which have been included in the curriculum, and what parts do they play in the whole scheme? Armed with this knowledge, he can then approach the problem of the selection of material for

any particular portion of the syllabus, bearing in mind the following :—

- (a) The age and capacities of the particular pupils with whom he is concerned ;
- (b) Their interests and requirements ;
- (c) The previous work which has been done ;
- (d) The work which is to follow ;
- (e) The part which the section in question plays in the syllabus, together with the part which the latter plays in the whole curriculum ;
- (f) The facilities available, e.g. apparatus for practical work, the supply of books, illustrative material, including any special local facilities such as industrial, geographical, and historical features of a useful character and the like ;
- (g) The special problems which the class or a group within the class may present (see study suggested on p. 79).

The teacher's aim should be to select from among all the possibilities which are at his disposal such material as will be most likely to form the basis of real experience for his pupils. It should be such that it falls within the range of the experience which they already have, i.e. it should have an intelligible meaning for them. This does not mean that nothing completely new should ever be put before them, but rather that it should be such that, with or without the help of the teacher, the particular pupils concerned should be able to comprehend its significance reasonably well. In the selection of a poem, for example, the teacher will be guided by the experience which his pupils possess, by their capabilities and by their interests. He will avoid poems whose leading ideas and emotional content fall outside their range, and select from among those in which they can be expected to find a substantial core of ideas and emotional elements comparable to what they already have, and which they can reasonably be expected to appreciate. When a faulty selection is made the unreal character of what is presented to them may devitalise the whole experience so that it means little or nothing of permanent value.

The teacher should not, however, be misled by the somewhat deceptive facility which many children have for committing poems and other verbal forms to memory in a purely mechanical way. This may pass for knowledge, but it is frequently little more than mere jargon of little or no real value to them, lacking as it does a foundation in real experience.

The significance of what has here been said upon the selection of teaching matter can perhaps be best realised by consideration of a practical example. Let us suppose that a teacher is required to select material for the arithmetical topic "Interest" in his teaching say, of a 13-year-old "A" class in an urban modern secondary school. He may approach this topic in a formal mathematical way and establish $I = \frac{P \times R \times T}{100}$, later using this

in a number of hypothetical situations. He may even go on to $A = P \left(1 + \frac{r}{100} \right)^n$ if his pupils are familiar with the index notation. This method, however, is hardly likely, in the first instance at any rate, to possess for the pupils the reality which will come from a study of the activities of the School Savings Association and of the transactions actually effected in connection with the Post Office Savings Bank and National Savings Certificates. These are things in which most of the pupils have a personal interest and which will provide them with an incentive to gain a knowledge of the principle of "Interest." If the topic is handled so as to maintain that psychological interest the subsequent intellectual insight may well lead to mathematical interests beyond the purely utilitarian level.¹ A study of house mortgages, hire

¹ In this connection it must be remembered that the treatment suggested here can, in unskilled hands, degenerate into just as mechanical a business as "doing sums." In fact, many pupils themselves actually prefer doing the latter, especially if they have the knack of getting them right, and if they are not called upon to put forth any great mental effort. It is the teacher's function, however, to bring his pupils into contact with realities and to stimulate them to effortful activities rather than to leave them to pursue the "easy" way. In fulfilling this function he will have real need of skill, especially in arousing their interests and maintaining them. To effect this he will have to make the most careful selection of material and treat it in such a way that it becomes really vital to the pupils.

purchase, etc., through the examination of actual examples, may well provide the future citizen with some useful information. This elementary training for citizenship may possibly be further developed by introducing the simpler aspects of local government finance, through the examination of actual statistics of loan charges, etc., relating to local projects with which the pupils are actually familiar. Whether or not the teacher gets to such generalisations

as $A = P\left(1 + \frac{r}{100}\right)^n$ will depend upon the school mathematics syllabus, the purpose which it is designed to serve, and the capacities of the particular pupils with whom he is concerned.

The matter which the teacher selects must be not only real in itself, but it must also be capable of being treated in a real way in the course of the ensuing experiences. A play is not necessarily a "slice of real life" because the actors eat real food, deal actual blows, cry watery tears, etc., upon the stage. The vitality will come, if at all, in the course of the development of the plot. So, too, when he is teaching, the teacher must arrange that the content is such that the pupil's learning processes can get to work upon it and develop upon the lines which have been indicated in Chapter III. The teacher will therefore find that the content of new experiences is, as a general rule, best selected from sensory and perceptual levels, e.g. the actual handling of pound weights, measuring quantities by their use, etc., will normally precede the introduction of the symbol "lb." or any references to the notion of "weight;" actual problem situations met with in setting out craft-work, etc., involving the need for fractional multiplication and division of actual quantities, may profitably precede the teaching of these processes in symbolical form; or an investigation into the mysteries of fire and burning by actual experimentation may usefully form the content of the concrete experience forming the basis for sound generalisations upon oxidation. Where he is dealing with more abstract topics, such as the "French Revolution," the use of pictures, films, stories, etc., will often assist in giving the perceptual background which the teacher needs to invest the whole activity with reality for the pupils.

III. Types of Teaching and General Method

OBSERVATION

As the teacher will observe when he first goes into a school, there are a number of conventional ways of approaching the conduct of most activities and experiences in the classroom. These have arisen as the result of a long process of evolution in which the survival of traditional aspects, the work of practical reformers, and the contributions of educational psychology have played their parts. The teacher is advised to treat these conventions with respect, at least in the early stages of his practice, and to base his own practical work upon what he observes of the work of other more experienced teachers. His observation of their teaching should, however, be intelligently directed so as to enable him to obtain not merely a smattering of technique, but to appreciate not only what these teachers actually do in the classroom but also their reasons for doing it. Slavish imitation of other artists, without intelligent insight into the processes involved, will prove a very unsatisfactory procedure, since the success of any teaching methods is conditioned by the circumstances of the particular teaching involved. What goes over well in the hands of one teacher working with a particular class upon one particular type of activity does not necessarily prove successful when imitated by another under an entirely different set of conditions. The observer therefore must, according to his understanding of the factors involved, be prepared to modify his own imitative practice.

One of the difficulties which he may experience in the course of his observation arises from the fact that the experienced teacher is often not "technique conscious." When teaching he does the right thing without necessarily even thinking out the reasons for doing it. He may not in fact really know that he has done something during the course of a lesson. His creative impulses hold full sway and he lets the activity carry his pupils and himself along in an absorbing co-operative partnership in which ways and means are not necessarily conscious factors at all. Techniques which have possibly been acquired in his early days as the result

of hard deliberate application are operated in an easy natural and effective manner in which control is quite sub-conscious. This, in fact, is the goal towards which all artists strive. The beginner, therefore, may not find even the best teachers particularly able to answer his questions on some points, though of course the bulk of these teachers keep an ever watchful eye upon any modifications of their own techniques which their immediate problems necessitate.

The observer is advised to make his observations of the work of experienced teachers upon a systematic plan, directing his attention especially to important points which are giving him difficulty in his own teaching. In the early stages, however, he might profitably direct his attention to such general points as the following :—

(i) The general plan and lay-out of the activity which the teacher employs to attain the ends in view, e.g. the steps employed and the actual activities used.

(ii) How the teacher secures the active participation of the pupils in the work in hand, e.g. the ways in which he stimulates their interest and so secures their attention, how he arranges to maintain this interest through changing situations and developments, the opportunities which are given for the expression of the pupils' mental and physical energies.

(iii) The grading of work and any special measures taken to cater for differing rates of progress among the children in the class.

(iv) The techniques which are employed to aid the teaching, e.g. how he checks up on progress during the lesson, the correction of children's work, the use of illustrations, the questions he asks and their purposes, and the forms of language which he uses.

This may appear a bewildering and almost inexhaustible list of characteristics to begin with, but it is not quite so confusing as it at first sight appears. School activities fall into certain well-marked types, each serving its own particular purpose, and all the features listed above will rarely appear together in any one particular learning period, i.e. in a single lesson.

ACTIVITIES AND EXPERIENCES

A walk around a fairly large school will often bring home to the observer the multiplicity of activities which now engage children's energies during the course of their school lives. One may see pupils engaged in silent reading, in dramatic work, in musical expression, in dancing and physical culture, in written exercises, in laboratory work, in cooking and laundering, in craft-work and sewing, in "playground" mathematics and geography, in painting and modelling, in listening to the wireless or to a teacher's oral exposition, and so on. The variety and range of all these activities reflect, as we have already seen, the movement to bring school work into ever closer relationship with life and to invest with reality the experiences through which the pupils live in school. The human traditions which supply the subject-matter for these experiences themselves show a similar width and variety in their nature, e.g. arts, crafts and music minister to man's needs to express his creative energies in tangible forms, each of which employs its own characteristic media; science, mathematics, history and geography are the answers to his quest for intellectual control of his world and each has its own individual subject-matter and form of development; religion, literature, etc., are the products of man's urge for emotional and spiritual development expressed in varying characteristic ways.

It may at first sight appear to be an impossible task to attempt to bring the extraordinarily wide complex of school activities which we have mentioned, within the compass of an ordered survey which will provide the teacher with some well-established general principles to guide his practice. If, however, we examine the whole range of activities from the learner's viewpoint we see that, according to the kind of activity involved at any one time and the nature of the relevant subject-matter, his learning falls roughly into three main types.

When a pupil is learning to speak, read, write, spell, count, draw, knit, make joints in woodwork, play a violin, cook, dance, climb a rope, etc., he or she is acquiring a skill. The predominant aim of the learning is to be able to *do* something which is usually,

but not necessarily always, a means towards some other end, e.g. to satisfy material needs, or to express his creative energies. When, however, the pupil is engaged upon the study of subjects such as history, geography and science, his aim is to *know* something, to improve his understanding and develop his stock of ideas about the human activities concerned, i.e. to develop his knowledge. There is a third type of school activities which are pursued mainly for the pleasure which they give in themselves, e.g. the enjoyment which comes from listening to music and poetry. The predominant purpose of this group of activities is to enable the pupil to develop his tastes through æsthetic appreciation.

These three types of learning, viz. (i) the acquisition of skill, (ii) the development of knowledge, and (iii) the development of taste, are not necessarily exclusive one of another. All these types may be concerned during any one learning period, e.g. a pupil learning to play a violin will be primarily concerned with the acquisition of a number of skills. He will, however, be required to learn something about musical theory, and his feeling for music and his sensitivity will, for good or ill, be affected. The teacher's technique, however, must be adjusted accordingly as these different aspects come to the fore, since what accords with one of these may ill accord with the other. The same kind of overrun is observable in other activities, e.g. in science where laboratory skills subserve the needs of intellectual development, and in literature where reading skills make their contribution to the development of knowledge as well as to the development of taste. One of the mistakes which teachers sometimes make is to try to make the same activity cover more than one purpose at a time without altering their techniques accordingly. A poetry lesson, for example, is sometimes made the occasion for familiarising children with a new poem, developing their knowledge of facts, word meanings, and grammar, as well as for practising the reading skills of immature readers. The results of this confusion of purposes are usually disappointing in all respects. The appreciation of the poem is gravely imperilled, and the knowledge acquired is frequently less than it might have been if the pupils had not been bored with the

whole business through having to listen to poor reading. The upshot may possibly be that through painful associations the majority of the pupils develop a positive distaste for the particular poem in question. A succession of such types of lesson may even lead to a wider distaste for all poetry. While, therefore, it is conceivable that in any one time-table lesson period more than one type of activity can profitably be undertaken, the teacher is advised to change the techniques to suit the particular teaching he is doing at any part of the period, since each of the types of learning we have mentioned has its own particular characteristics which should determine the methods to be employed.

GENERAL METHOD

If the teacher could be presented with a formula for teaching method which was of universal applicability to all situations many of his initial problems would be solved. A number of attempts have been made at various times to provide this *Open Sesame*. Of these perhaps the best known, and the one which enjoyed the longest run of popularity, is the contribution of Herbart¹ and his disciples. To this school we owe the Herbartian Formal² Steps. These steps in teaching—Preparation, Presentation, Association, Generalisation, Application—form the pattern which was evolved in this attempt “to psychologise” school instruction, i.e. to make it an ordered process in which the stages are determined by the psychological order of the development of ideas in the human mind. Preparation aimed at getting the pupil ready to receive new knowledge by calling up ideas which were relevant among his existing stock. Presentation was the step in which the new ideas were met by the pupil, presented to him “in regular succession for clearness of every particular.” Association was the linking up of the new ideas with the old and with one another into a system. Generalisation was the evolution or formulation of the general idea, statement of rule or principle, etc. Application

¹ Herbart, J. F. (1776-1841).

² Formal refers to the “form” the teaching takes, not to its nature.

was the stage in which the new knowledge was put to use, applied to some other situation.

For a considerable period Herbartianism enjoyed a run of popularity in certain quarters. Many teachers of the older generation can remember how, during their training, they were called upon to exercise a great deal of ingenuity in fitting their lesson notes into the set pattern of the required steps. When, however, they laboured to put their plans into action it became obvious that the method, as a universal key to every teaching problem, simply would not work. Its chief defects were that it was too exclusively intellectual in character, that it paid little regard to the emotional components of interest and relied upon ideas themselves to provide motives for learning, that association was a mental process going on in the learners' minds all along the line from the very start of the presentation rather than a separate distinct phase, and that generalisation was not quite so simple and straightforward a process as Herbart would make it appear, as witness modern scientific method where there may be several tentative generalisations required at different stages in the one piece of teaching before the final principle is reached. The acquisition of skills and the conduct of activities involving æsthetic appreciation obviously did not fit into the Herbartian pattern which in practice had to be so drastically modified to accommodate these activities that it became unrecognisable.

Teachers who tried to follow the method seriously found also that it led to some very unnatural activities and to a rigid uniformity in teaching which tended to devitalise their work. It is not surprising, therefore, that the method declined in popularity, and it is quite possible that many teachers trained in recent years may not have heard of the Herbartian Steps except as historical curiosities. There are, however, one or two points about the method which are worth noting since we can even to-day learn something from them. To begin with, Herbart draws attention to the need for orderly procedure in teaching. This need not necessarily involve a rigid uniformity in method or in inelastic approach. Even Herbart himself believed that modifications of the method would be

required for children of certain ages and in certain subjects. In several respects also the underlying psychology is somewhat similar to the picture which was drawn in the preceding chapter. Herbart begins with the perceptual level and derives the concepts at a later stage. Too frequently this psychological order is ignored in teaching while some teachers even reverse it (see p. 54). Herbart's insistence upon preparation of the pupils, i.e. upon getting them ready to be taught, and his dictum that "Knowledge is not knowledge until it is put to use" are teaching guides which are of practically universal validity. The writer has seen many lessons fail because the pupils have not been adequately prepared to acquire the new knowledge which was planned.¹ It is, moreover, frequently common sense to round off a bit of teaching by utilising the children's new found powers in some useful directions rather than in leaving them "in the air." Knowledge so used becomes through its usage impressed on the children's memories and acquires an enhanced value for them.

There is a further contribution of Herbart's which is of interest to the modern teacher. His steps refer to what he termed a "method-unit." This is really a "topic" or unit of learning and not the content of a single time-table lesson period. In most schools we find our activities to a certain extent time-tabled. Inconvenient as we may at times find this, it is almost inevitable under modern conditions where the head teacher, who has the responsibility for running the school, endeavours to order the use of gymnasium, playing field, workshops, domestic centres, library, laboratories, etc., among the classes. Without the time-table there would probably be chaos, and, except in very unusual circumstances, it is a necessary evil which all must accept. The tendency, therefore, is for teachers to think of the activities they conduct in terms of the time-table lesson period rather than in

¹ An outstanding failure arose when a teacher, a victim of the time-table organisation, brought his class straight from a very vigorous physical training activity into the classroom for an appreciation lesson in poetry. Without a moment's pause, and with the class and himself very "hot and bothered," he plunged straight into a reading of Walter de la Mare's "Nod" with disastrous results.

terms of the learning process. It is obvious that simple topics may be dealt with in a few minutes, e.g. "how to use a set square," or the meaning of a new symbol for something with which the children are already familiar. On the other hand, some topics may run over quite a number of lesson periods, e.g. "multiplication of decimals," "oxygen," or the "Industrial Revolution." The actual lesson periods which are taken up in covering topics like these are only in a relatively minor sense units in themselves. It is in each case the whole topic which should be borne in mind as the learning and teaching unit, in which the sections of the activities undertaken in the several periods play their respective contributory parts.

Without suggesting for one moment that we should go back to Herbart for our methods, and with no intention of proposing any rigidity of method which would in any way restrict the initiative of the individual teacher in conducting his classroom activities in accordance with the ways in which he finds that his particular pupils learn most effectively, the writer indicates in the pages which follow some general principles of method which have been found useful in helping beginners to plan and conduct their classroom activities in the early stages of their practice. These principles should be applied in the most liberal manner and freely adapted to meet the requirements of particular circumstances of which the most important factors are the needs and capacities of the pupils concerned and the particular problems of the piece of learning and teaching involved. Each of the school subjects has its own characteristic material and methods of development since it is but one slice of the variegated pattern of life. Each therefore has its own special teaching method which is appropriate to it. It is not our purpose to deal with these special methods within the compass of this single volume, and the teacher is advised to consult the many excellent books on the teaching of individual school subjects which are available. We are here concerned only with the general lay-out for the conduct of the three types of activities which we have mentioned on page 94.

CHAPTER V

THE ACQUISITION OF SKILLS

THE term "skill" is a somewhat elastic one which is applied to a wide range of activities. At the lowest levels we have the neuro-muscular skills, such as walking, running, and writing, which are more or less physical habits enabling their owners to get about the world, move parts of their bodies effectively and manipulate things in their environment. As we saw in Chapter II these are components of more complex organisations giving their possessors ever-increasing power to express themselves in physical activities. In modern education, as we have also seen, great importance is attached to this side of a pupil's development. The teaching technique which is concerned in the development of these muscular skills is therefore dealt with fully in Chapter VI.

Comparable in their purpose to the above skills are the habits, such as the basic speech forms, spelling, reading and counting, which constitute the important foundations of the "instrumental" subjects of the school curriculum. Spelling is a form of mental habit, while counting, elementary speech and reading are verbal habits acquired much in the same manner as the neuro-muscular skills, but using somewhat different machinery. They are valued not in and for themselves but rather for what one can do with them. They are "mechanical" in so far as their forms are fixed and permit of no individual variations, e.g. we frown upon a child's endeavours to be original in his spelling, he must, moreover, read "c-a-t" as "cat" and nothing else, and must count "1-2-3, etc.," rather than in any other way which may please him better. As he progresses, however, these "mechanical" habits of speech, reading, spelling, etc., can themselves form important elements of more complex skills in which his creative impulses find expression. Composition is a skill in which an individual quality is not only permitted, but definitely encouraged. The pupil must, however,

still spell properly and preserve the conventions of language usage, etc. Reading also can serve as a vehicle for creativity in the study of literature where the pupil's creative imagination is freely exercised. Oral reading and speech can become, for suitable pupils with the right type of development, fine arts whose sole aim is to command the attention of others and give pleasure to the listeners.

Each one of the arts and crafts shows the same characteristic development that we have indicated, a synthesis of mechanical elements of technique with creative forms of expression. At the highest levels there are obvious differences among the skills which are developed by the artists and craftsmen, e.g. between playing a Beethoven Pianoforte Concerto and cooking a rice pudding, or between making a cabinet to order and painting a portrait. The amount of freedom allowed to the individual artist or craftsman to express his own creativity varies considerably from one activity to another according to its nature. It is not our purpose here to enter into a discussion of the differences between fine arts, and applied or mechanical arts, or between arts and crafts. The dividing lines are somewhat blurred as witness the non-committal use of the term "art-crafts" by some writers. All, however, have these two features in common, they involve techniques which administer to the practitioner's control of his materials and, to a greater or less degree, freedom for him to use those techniques to express something of his own creation.

In schools we are largely concerned with the teaching of techniques, as it is in these respects that we find our pupils requiring a great deal of assistance. To neglect the creative aspects, however, is to violate an elementary principle. According to the view taken in Chapter I the child is a centre of creative energy, the life force within him seeking outlets for its expression. The main driving forces of his life, are therefore creative in character. Technical exercises which are divorced from creative expression, are consequently likely to remain in a kind of vacuum in the midst of his experience and to lack the motivation which is essential for their proper mastery. Too frequently in education we have tried to build up a complex of techniques and then to apply it to creative

expression. The writer, for example, went through a long and dreary series of progressive exercises in "manual training" which had little or no interest in themselves. A promise was kept dangling in front of him that, at the end of it all, if he did sufficiently well, he would be allowed to make a model.¹ Unfortunately, his progress in the whole dreary business was so slow that he never got to the "model" stage. The painful monotony of the old-fashioned approach to music through drills of a repetitive character, five-finger exercises, scales, etc., which eventually culminated in the playing of "pieces," was frequently responsible for surreptitious short circuiting on the part of the more adventurous spirits who learned to play "by ear" when "authority" turned its back. Many others lost interest and gave up the struggle as a hopeless one. The modern method of teaching music does not ignore the need for the mastering of techniques but rather bases their development upon the felt needs of the learners. Melodic exercises, which are in themselves interesting and pleasing to the young performers, are employed wherever possible to achieve the same ends as those served by the technical drills of earlier days. When, therefore, any repetitive "drill" is required it is definitely purposive and arises out of needs clearly envisaged by the pupil. In other arts and crafts the learners still practise their techniques, e.g. the making of joints in woodwork, types of stitching in sewing and knitting, and colour-work in art, but these are mastered as the need for them is experienced by the pupils themselves in the course of their creative work. All the prerequisites for successful learning are then present since the learners appreciate the purpose of what they are doing and have a definite motive for doing it.

In the earlier stages of the teaching of the instrumental subjects, reading, writing, and number, the possibility of deriving the drills concerned from the children's creative work is not so obvious as in the examples which we have instanced. As we have already seen, the amount of freedom which can be allowed is extraordinarily

¹ This *pièce de résistance* was kept ever in front of us as an inspiration. It took the form of a rectangular piece of wood with a couple of holes bored near each end, and four or five brass hooks screwed into it. The whole "model" was entitled "KEY RACK."

limited since the habits involved are fixed and narrowly determined by the overriding conventions. All the methods which are commonly used in schools for teaching these subjects are, however, designed to invest the activities concerned with purpose and interest for the pupils. In the teaching of reading, for example, the frieze which is often used for developing the children's recognition of individual letters, the pictures employed for word-matching, the constructive word-building, etc., are all intended to make real and interesting to the children what they are called upon to do. Their creative energies are being used even though the forms, which the expression of these takes, are somewhat limited by the material provided. In arithmetic we note the same characteristics. Teaching is invested with reality through contact with practical activities, and wherever the children's energies can be utilised in constructive work they are so employed, e.g. in number games, the manipulation of apparatus, the construction of tables, and in many competitive activities.

Spelling has for generations been the bugbear of the English-speaking school child. The spelling of the English language is the result of a long development during which it has never been really "cleaned up" and straightened out. Unfortunately, correct spelling has a conventionally high value as a mark of good education, and one must become famous before being able to admit to the possession of a defective set of spelling habits. On the other hand, it must be admitted that if spelling were left to the uncontrolled inventive capacities of young minds the effects upon the language would be appalling to contemplate. The solution to the problem appears to the writer to follow along the lines already indicated, viz. to teach spelling in close relationship with the child's creative work. It follows, therefore, that the spelling of the words which he uses, or wishes to use, in his written work is of prime importance and should receive the first attention. It would also appear to be a waste of time to teach the spellings of words not likely to be required in his written English. Many teachers do not always appreciate the fact that the "recognition" vocabulary of the ordinary child which he uses in reading and listening, is not neces-

sarily the same as the vocabulary which he needs for his composition, and they are thus inclined to make too many demands. The spellings of quite unusual words are "learnt" which are often not likely to be required by the pupil in his written work. The words most commonly used by children of different ages have been objectively determined and appear in published forms, e.g. the Ayres Scale.¹ The teacher can use these as a guide, alongside of the spelling errors in compositions, to teach the children who cannot spell. As part of his Preparation step he can determine these by a short test, since it is obviously a waste of time to require those who can spell the words concerned to "over-learn" them when they could profitably be spending valuable time upon something else.

When one comes to the higher level of skill involved in an activity such as composition, a greater freedom for constructive work and individual variations is found. The pupil is encouraged to bring an individual quality to his creative work and to express himself in written English. In this he will use the rudimentary skills of writing and spelling, together with the conventional language forms with which he has been concerned in the early stages. One of the most important prerequisites for his success is that he should have something to write about, i.e. that he should have a rich stock of ideas derived from his experience. It is an exhausting and discouraging task to have to write upon something about which he has really little or nothing to say. The modern method, therefore, is to delay composition, as usually understood, somewhat later in the primary stage than was formerly the rule when children of eight or nine used to be plunged into "essays" upon relatively abstract or "grown-up" subjects. The aim is to develop the skill progressively, building up the subsidiary skills to a reasonable standard by stages. This does not involve waiting until all the mechanics of writing are completely mastered and the spelling of every word known, but rather their development to such a stage that the division of the child's attention between the "mechanical" and the "creative" aspects does not involve an

¹ Leonard P. Ayres : *Measuring Scale for Ability in Spelling* (Russell Sage Foundation, New York).

insuperable barrier to effective expression. As he progressively develops his mastery of writing and spelling, and of conventional language usage through the various exercises in the selection and use of words, the writing of descriptions and reports, etc., to be found in many excellent published text-books, his increasing experience enriches his mental content, while oral exercises help to develop his powers of expression in speech. When free composition then is undertaken, the pupil's attention can be given to the arrangement and expression of ideas with a minimum of hindrance from defective machinery.

In a good school the work in composition is conducted in the spirit which should characterise the conduct of all creative activities. It is, wherever possible, given a real life setting through the provision of an actual or imaginative background of a realistic nature, e.g. a letter is written relating to some real or imaginary situation falling within the compass of the children's experience ; a contribution is attempted for the school or class magazine or newspaper ; the dialogue of a play is devised ; or a summary of some work done is made for the purpose of future reference. In this way " exercises " become real communications and contributions, and the pupils become " authors."

This reminds us further of a common failing in some schools. Too frequently a subject is " given out " to the pupils and they are expected to compose to order, within the limits of the timetable period, " copy " of a certain length which is determined by the teacher. This copy, moreover, is to be done in their " best books " in " best writing," without alterations, some teachers going so far in their insistence upon neatness as to forbid the crossing out of obvious errors, which have to be " bracketed " and the corrections superimposed. The amazing thing is that some pupils do progress in composition skills in spite of such methods. The vast majority, however, achieve a standard of " safe " mediocrity which usually represents something far short of their potentialities. A glance at the MS. of any famous work, e.g. some of Elgar's compositions, will convince the reader that creative work is not quite such a simple business as the school method

referred to here would suggest. The highly skilled exponents make use of second, third, fourth . . . *n*th thoughts. Thomas Hardy once claimed to Robert Graves that he himself rarely made more than three or four drafts of his poems, after Graves had admitted that he had sometimes made as many as eight.¹ While admitting that there is a great gulf between the experience and critical faculties of these masters and those of normal boys and girls in school, and at the same time accepting the fact that to require these latter to spend a great deal of time "tinkering" with their productions would inevitably result in a loss of freshness, spontaneity, and interest in their work, it does appear reasonable that wherever possible the youthful authors should be encouraged to re-read and re-fashion what they have written if they can see any way of saying what they want to say more effectively. At least it is fatal to creativity if the teacher takes the line that what has been committed to paper is permanent and irrevocable until the "correction" period arrives.

THE GENERAL METHOD OF TEACHING SKILLS

The Preparation step is one which is common to all teaching activity, whether this is aimed at developing the pupils' skill, knowledge, or appreciation. At the beginning of a "topic," or at the commencement of any single lesson period, the teacher must arrange that the pupils are ready for the new experience. The aim of this step will be to get the right learning conditions, with the pupils in the appropriate physical and mental states to profit from what they are about to undertake.

When skills are taught in relation to creative activities this step is often facilitated by arranging that the need for the new technique becomes obvious to the children. For example, a model may be shown which involves some new application of skills, a strange tool may be exhibited, or better still the pupils may be led in their practical work to hit up against a difficulty which makes obvious the need for some new treatment, or the use of a process

¹ Robert Graves : *Goodbye to All That* (Jonathan Cape).

with which they are unfamiliar, e.g. the playing of a simple melodic exercise involving the necessity for the use of other positions than the first in violin playing, the construction of a model requiring the mortise and tenon joint in craft-work, or the preparation of a dish in the absence of one or more of the standard ingredients in cookery and requiring the skilled use of substitutes. Whatever method is used, it must accord with the children's interests and with the knowledge or skill which is concerned. If, within these limits, the children can be brought to realise the nature and purpose of the new work the main aim of the Preparation step will have been achieved.

The Application step will not usually need special attention. Where the skill involved subserves other skills or creative work it will automatically serve its purpose in those skills or in the constructive activity, e.g. spellings will be used in composition, arithmetical tables in multiplication, and speech in oral work such as dramatics, answering questions and telling stories. Where the skill concerned is an end in itself, the actual exercise of that skill is its own application, e.g. swimming, throwing the javelin, playing the piano, and dancing. If, therefore, the work chosen by the teacher is suitable and purposive, the Application step can be left to look after itself since there is no purpose other than this application for undertaking it at all.

The intervening steps between the Preparation and the Application can best be appreciated by reference to the way in which skills are learnt. As a general rule this is by the imitative practice of selected models (cf. pages 42-44). This usually involves two phases: (a) the appreciation of what has to be done to the level of being able somehow or other to do it ourselves, and (b) practice to achieve mastery over our materials and refinement of our performance so that it reaches a satisfactory standard of achievement.¹ Among the many meanings offered by an ordinary dictionary for the word "presentation" the following appears, "the act of making personally known, of

¹ In such activities as reading and spelling it is unwise to draw a hard and fast line of demarcation between these phases as they tend to merge in practice.

exhibiting or bringing to view or to notice." If we can stretch the idea of "making personally known" to include an experience in which the learner obtains not only an acquaintance with and insight into an activity, but also a rudimentary practical grasp of its performance we have in this term "Presentation" the one we need for the first phase (a). The obvious choice for the second phase (b) is "Practice." Here, then, we see the four teaching steps involved in the acquisition of skills, viz. Preparation, Presentation, Practice, and Application.¹ We have already dealt with the first and last steps, let us, therefore, turn to a closer examination of the others.

Presentation.—The character of this teaching step will vary from subject to subject according to the nature of the activities involved, e.g. spelling differs essentially from arithmetical computation, and composition from singing, different mechanisms which operate in different ways being involved in these several activities. The object of the teaching is to enable the learner to appreciate exactly what has to be done and to find out a way of doing it. He must, moreover, to a certain extent in this step, make that way his own. The teacher's function is so to arrange the conditions of the pupil's experience that these ends are achieved. The pupil may be shown a way to do what is required by the teacher who will demonstrate and explain it, or he may be led to discover it himself through the situations the teacher arranges. An example or two will make this clearer.

Let us assume that the teacher has completed the Preparation step in a spelling lesson by giving a 20-word test from one of the published scales (see p. 103), and that he finds 40 per cent. of the class correct, 30 per cent. with one or two errors only and the

¹ Some writers add an additional step, "Statement of Rules," immediately before the Practice step. Generally speaking, a generalisation of the experiences involved is not profitable as a separate step. The result is often stultifying. Where, however, a helpful purpose can be served by such rules, for example, as the "i" before "e" rule in spelling, they can well be given in the Presentation step. Too many rules may, however, in some activities, lead to unnatural performances, e.g. the stress upon beats in singing, and the injunctions, "Comma! Keep the voice up!" "Full stop! Drop the voice!" intoned in illustrative fashion in reading.

remaining 30 per cent. with a performance which can be classed as "weak." He must first organise the class so as to be able to give his personal attention to the "weak" group. The pupils who do not need teaching can be set to work on something of profit to themselves, e.g. silent reading, written work in English, or arithmetical exercises. Those who have but one or two errors can be disposed of by setting them to discover the correct spellings from a dictionary and then to proceed to the Practice step. Full attention can then be devoted to the weak group.

The teacher's method of conducting the activity will depend upon the nature of the processes involved in the spelling habit, and the types of errors which the pupils have made.¹ When a word is spelt by a writer that word is reproduced from his memory. The act of reproduction is influenced materially by imagery of several kinds, e.g. the auditory imagery occasioned by pronouncing it, or hearing others say it, or even of spelling it aloud on previous occasions, the visual imagery resulting from seeing it written or printed and possibly the manu-motor imagery, i.e. "the feel" of writing the word on some former occasion.² There are other factors involved which are also of importance, including the recency and frequency with which the writer has met and used the word concerned, together with the associations which the word has and the interest which these associations stimulate. The teaching method will therefore pay regard to all these features. The word will be seen by the pupils, said by them, examined as to its structure, possibly spelled aloud, and then practised. Suppose, for example, a general failing of the weak group is the spelling of the word "important." The teacher introduces it orally to the group who themselves pronounce it collectively and individually, since spelling

¹ Professor Burt's *Mental and Scholastic Tests* (P. S. King & Son) gives, on pages 291-293, a scientific analysis of spelling errors which is extremely useful in correction work for individual children. All errors are not of the same kind, and habitual bad spellers fall into well-marked classes, each of which has its own characteristic remedial work.

² Some writers do not attach much importance to this in spelling. On the other hand, there may be something in it since words which we so often use, e.g. our signatures, do appear to have a kind of characteristic hand control with its own peculiar intimate feeling of movements.

errors frequently take their origins in faulty pronunciation.¹ The word is then written upon the board and the pupils see it. The teaching procedure may now take a variety of forms according to the teacher's judgment. His aim is to impress upon the children the order of the letters in the word, and to arrange for them to get a wide range of sensory experience to enable them to detect faulty habits and to establish correct ones. He may choose to break the word into syllables, "im-port-ant," though there are some authorities who oppose this plan. Other methods include: (1) searching for "hidden" words, e.g. "imp," "or," "ant," "port," "tan," thereby drawing attention to the order of letters; (2) spelling the word aloud individually and collectively from the board; and (3) spelling it orally with eyes closed, i.e. without the aid of visual presentation. The final stage of this step comes when the teacher is certain that the members concerned are clear upon the order of the letters in the word, that they have examined it carefully, and have had any misconceptions removed. They now perform the skill in its proper medium by copying the word correctly in writing and are ready to proceed to the Practice step.

Examples from arithmetic teaching will serve to illustrate further how the conduct of the Presentation step is conditioned by the nature of the processes involved, even within the same school subject. For example, let us suppose that the Preparation step has been effected whereby pupils who are familiar with the addition of fractions of the type in which the L.C.M. of the denominators is obvious, e.g. " $\frac{1}{2} + \frac{3}{4} + \frac{1}{8}$," are brought up against " $\frac{1}{3} + \frac{5}{6} + \frac{1}{2}$." Let us also assume that none of the brighter pupils has "spotted," by analogy with familiar procedure, the key to what has to be done. The teacher can handle the matter as a collective class teaching problem. There are several methods open to him, viz. (1) he may give a mechanical rule, show how to apply it, and get on with the next step; (2) he may proceed by analogy with what has already been done, e.g. by referring to the custom of expressing

¹ Where the meaning of the word affects its spelling this is best brought out by its use in suitable sentences by the teacher and the pupils.

all the fractions with the same denominators, i.e. "8" in the first example above, and suggesting to the class a quick way of determining a suitable one in the case in point; or (3) he may refer them to their rulers, if they are marked in twelfths,¹ and get them to discover the solution of the exercise in question, supplement it by further work, and generalise their experience in the form of a rule.

Whichever method the teacher adopts, and it is not our purpose here to evaluate these procedures except to mention in passing that (1) is usually productive of less effective learning than (2) and (3), his aim will be to familiarise the pupils with a method of determining a way of expressing fractions in terms of a common denominator. This will involve their appreciating a number of relationships and subsequently, with the aid of the skill which they acquire, their applying the principle with intelligence to other situations. When once, however, the principle has been grasped the pupils are ready to pass on to the Practice stage.

A different kind of approach is involved in teaching arithmetical skills which are of the mechanical order, and which rely upon memory rather than upon the application of a process. For example, when teaching a new multiplication table the opportunities for enlisting the aid of the children's intellectual powers are extremely restricted. Beyond getting them to construct the table by the continued addition of the number which gives the title to the table he can do little more involving creative activity. His Presentation is the familiarising of the pupils with a set of bonds, which, through the development of habits, they are required to make their own in the Practice step which follows.

If we look at all the skills which usually appear in the ordinary school curriculum we discover a wide range of activities varying in character. The Presentation step, however, will invariably involve familiarising the learners with ways of doing something or other. The methods which the teacher adopts will be in accordance with the nature of the activity, e.g. he can be authoritative

¹ If their rulers are not so marked the teacher can use a diagram upon the black-board to illustrate the points required.

in his pronouncement upon spelling, pronunciation, multiplication and the like, while his treatment of verse-making, painting, dramatics and so on will be suggestive rather than prescriptive. In other words, in the first type of activity he will present to the learners *the* model, whereas in the second type he presents *a* model or series of models. His Presentation will further be conditioned by the capacities and needs of his particular pupils. It is of little use expecting dull and retarded children to discover things for themselves, and it is equally futile to hold back capable children in the interests of "teaching" which they do not really need.

Practice.—In this step the learners practice what they have grasped in the preceding step, with a view to perfecting their performance or execution of the skill involved. The teacher's function is to enable them to make that practice effective. To this end he must arrange the conditions of the practice so that the best results are to be obtained from their efforts. Materials should be previously inspected for their condition, and made available as and when they are required so as to avoid waste of time, e.g. in hunting for "lost" exercise books, refitting pen-nibs, re-allocating text-books, etc., during the actual period. He should also determine beforehand the allocation of time to devote to this step. It is unwise to give a whole period to the practice of a skill such as table learning. The most effective results are obtained by conducting a number of relatively short periods of intensive practice in this kind of skill. On the other hand, a few minutes devoted to composition, drawing and the like, are more often than not wasted for practical purposes. In some activities, such as language exercises and arithmetical skills, the grading of the work is of supreme importance. Practice cannot be effective if, for example, the exercises based upon a new rule in arithmetic, are too steeply graded. If children have just been taught how to deal with " $143 \div 13$ " it is unwise to rush them too quickly to exercises like " $250 \div 13$ " which involves three new features at one and the same time. The safest rule to adopt in teaching skills of this type is to introduce the variations one at a time. The children then have a good chance of handling them with a minimum of

aid from the teacher, and of establishing the skills firmly on a solid foundation in which they can feel confidence.

The teacher's teaching functions proper during this stage include (i) the general supervision of the whole activity, and (ii) the guidance of the practice performance of individual members of the class. He must, moreover, maintain the control which is necessary for the work of the little community under his care to proceed economically and effectively under suitable conditions. The guidance which he gives individual members will be directed towards enabling them to master the skill involved as expeditiously and completely as possible. If it is of the type which is fixed or mechanical, he must see that the learners conform to the pattern faithfully and consistently throughout. Their performance must be a strict imitation of the model, and no individual variations are to be permitted. If, however, a skill such as composition, drawing and certain kinds of craft-work is being practised, the individual qualities become most important. He will only interfere in these cases when what he sees a pupil doing is definitely hindering and not helping the performance. He will throughout obtain the best results by helpful suggestions and encouragement.

One of the essentials in the development of any skill is for the learner to be able to evaluate his own progress. When learning a table, for example, he wants to be able to know how his learning is getting on, and the teacher should provide opportunities for him to test this progress frequently throughout the practice. Number games and other devices abound which not only help to maintain the essential interest but also provide the learner with a measure of his progress. The criterion of good practice lies not in the number of times which a skill is repeated but in the mental attitude of the learner who is practising it. A mere chanting of tables, for example, may do little to help establish the essential habits unless the individual members are thinking of what they are doing and are trying to learn them. The writing of spelling or composition "corrections" a large number of times may become a mere waste of paper and ink once it descends to the level of a repetitive act in which the writer is giving little or no attention to what he is doing.

The original errors may even be introduced again once the interest flags and concentration upon the task relaxes.¹

The foregoing raises the whole problem of "corrections" of children's work. An ordinary class teacher usually spends in the aggregate a few years of his normal professional life correcting children's written work. This is often done most carefully and methodically, and in due course the work is returned and "inspected" by the authors, who may or may not "do" the corrections involved according to the school or class custom. Many teachers wonder why the errors are so frequently repeated, even after correction by the pupils, and some have naturally questioned whether the time they have spent in this work is worth while. In the opinion of the present writer one of the chief reasons for the failure of this method is to be found in the time lapse between performance and correction. When developing a skill it is essential that errors in performance should be corrected at the earliest possible moment after they have been made. The correction is then part of the original experience and is felt by the pupil as belonging to it, a condition of affairs which is almost impossible after a substantial lapse of time. The practical corollary to this is that during the practice period the teacher should be about amongst the pupils keeping a watchful eye upon what they are doing and getting them to correct their work *in situ*. Even so, in any class of the size one usually finds in schools, many pupils will do work which will require subsequent correction by the teacher. This need not be without value provided that the teacher's corrections involve the pupils' subsequent active co-operation in actually putting right what is wrong. If, instead of putting right an incorrect figure in an exercise, or reshaping a piece of English ungrammatically

¹ A headmaster friend of the writer's vouches for the following incident in his school in Hampshire. A common error in speech in the particular district concerned is the use of "I have went." A teacher, endeavouring to correct this error, directed a pupil to write "I have gone" fifty times after school. He forgot the direction himself but the erring pupil did not, and duly completed his imposition. On his return the teacher found on his desk the "corrections" together with the following note: "Dear sir, I have written I have gone fifty times and so I have went home. Yours obediently, A.B."

expressed, the teacher requires the pupil himself to discover what is wrong in the place indicated and if possible to put it right by his own efforts, then the time spent in correcting the work cannot be entirely wasted. If, however, the teacher runs through an exercise and straightens it all out himself, and all that the pupil does is to contemplate his efforts, one can safely say that the former is usually wasting his time.

Another form of correction which has in recent times become quite popular in schools is the public criticism of exponents by their fellows. Under the plea that if the pupils are encouraged to criticise the efforts of their fellows in such skills as composition, recitation and oral reading, a two-fold purpose is served, viz. (i) the critics learn what to look for in a performance of a particular skill and hence develop their own performances, and (ii) that the criticised performer knows where he is wrong, it has become quite a common practice to submit individuals to somewhat exacting ordeals. A public "trial" of this kind needs very careful supervision on the part of the teacher. Some performers of a suitable temperamental make-up can perhaps benefit considerably from this type of experience. On the other hand, a number of sensitive pupils may not take quite so easily to it. The trouble is that children, when encouraged to be critical, are inclined to be hyper-critical or captious. Much time may be wasted by such methods or, what is worse, real damage may be done to the future performances of the supersensitive pupil. On the whole, criticism comes best from the teacher, who can handle it with a just and discerning dispensation based upon a developed appreciation of true values.

It is true that the author, the actor, the musician, the painter, the sculptor and any other artist is doomed in this world to meet with criticism which may not always be just either in its condemnation or in its praise, but the pupils in school are not artists. They may join the ranks of these in the years to come, but the prime concern of the school, as we have already seen in this book, is not with the training of artists but with the general education of the pupils entrusted to it. The criterion of success in the teaching

of any art or craft in a school is not, therefore, to be found primarily in the standard of performance achieved by the pupils in the activities involved, but in the effects of the pursuit of those activities upon the individual pupils themselves. This is a fundamental principle which is often overlooked by teachers and others who are interested in education.

CHAPTER VI

THE DEVELOPMENT OF MUSCULAR SKILLS

IN school the teacher is required to teach his pupils such skills as the use of pencil, pen, and paper in writing, the handling of tools in craft-work, the manipulation of apparatus in science, the ways to use chalks, paints, brushes, etc., in art, as well as the control of their bodies in physical training and games. These are all primarily activities in which the children's physical equipment is most concerned. The intelligent use of this equipment is, of course, a matter which the teacher will have in mind when helping his children to develop the controls involved. It is of little use, for example, to teach a child how to use a chisel if he does not at the same time learn that this skill is not merely to be used for chipping bits out of any spare piece of wood but rather to serve useful purposes in constructional work. Our immediate concern in this chapter, however, is with the physical aspects of the controls involved in the type of teaching to which reference has been made. It is in respect of these developments of children's bodily movements and of their physical manipulation of tools and materials that the term "muscular skill" is here employed.

TEACHING OBJECTIVES

The objectives which we have in mind in teaching of this kind are two-fold :—

1. The first and more important immediate aim of the teaching will be to assist children to develop those co-ordinations of nerve and muscle which are involved in skilled bodily movements and in the manipulation of tools, instruments, materials, etc. They must be taught not only how the movements concerned are carried out, but also to be able to perform them with the ease which comes from mastery. The ease with which a capable exponent of any art or craft executes his movements and manipulates the

tools, instruments, or materials concerned, is a mark of "finished" performance.¹ There is nothing laboured about the way in which he carries out what may be movements of a most complicated nature, though it is quite likely that the performer has, in the learning stages, put in a great deal of hard and patient labour in order to reach a high standard of performance.

2. The second objective of this teaching is to assist the children in that physical development which, as we have seen in Chapter III, is the basis for intellectual development. The more skilfully a child is able to handle his environment, and the better able he is to enter into active relationships with it, the more likely he will be to learn about it through the resulting enrichment of his experiences.

TEACHING TECHNIQUE

The key to the method of teaching physical skills is to be found in pages 42-45, in which the physical equipment of children and the ways in which it is developed are indicated. In brief, we noted that a physical skill is a product of the children's neuro-muscular machinery, and that it is normally developed through the imitative practice of a desired activity by interested learners. This, the general pattern of development, forms the basis of the technique we require. From it are derived the four following steps or stages:—Preparation, Presentation, Practice and Application (cf. page 107). In the Preparation the pupils are made ready for the new advance. The Presentation aims at assisting them to obtain an insight into the activity and a rudimentary practical grasp of its performance. Practice aims at

¹ It is significant that perfection of control often gives the observer a fallacious idea as to the highly skilled nature of a performance. The bowing and stopping of Yehudi Menuhin, for example, may lead a casual observer to wonder why there are so many indifferent fiddlers about. "It all looks so easy," as one such observer remarked to the writer.

Children are particularly liable to be misled in this respect. After witnessing an extremely clever display of diving by Olympic divers, two pupils who had never before performed a dive, were only just prevented in time from taking a combined header from the topmost board. The writer came to the conclusion, after intensive interrogation of these ten-year-olds, that they both genuinely believed, as one of them put it, that "It's easy! There's nothing in it!"

mastery of controls and the Application step is that in which the new powers are put to use. The first three of these steps are given fuller treatment below. There is nothing further to add to the general recommendations given on p. 106 concerning the Application step.

Preparation

The main aim of this step is to capture the interests of the children by making clear to them what they are going to do and why they are going to do it. This can often be most effectively done by the teachers giving a straightforward statement, clearly and concisely phrased, of the purpose of what they are going to learn, e.g. "We are going to learn to plane the wood for the next model. This is the plane we use—the jack plane." He exhibits the plane to the group around him and then, "This is how it is used!" and, suiting the action to the word, he gives a brief demonstration. His aim is to arouse their interest in the tool, let them see what can be done with it, and give *them* a purpose for learning to use it. In some activities this kind of introduction may not be possible. In art, for example, a specimen of completed work may be shown and the children informed that they are going to learn how to get a particular effect which they see in the specimen before them. In physical training the teacher may just announce, "We are going to try a hand stand." He can then merge this step with the next. The nature of the introduction is strictly dependent upon the kind of skill to be taught, what the children already know about it, and the age and type of children concerned.

Once the purpose of the activity is realised by the children and their interests in it have been aroused, the end of the first teaching step is in sight. Long explanations and introductions often defeat their own ends. It is a psychological law to be borne in mind throughout all teaching of skills that once nervous energy has mounted up, ready to be discharged into a set of nerve communications, it gives most satisfaction to the learners if it can be discharged as soon as possible. Once, therefore, they are interested, they are anxious to get on with the actual business in hand, and the teacher should bring forward their activity to as early a

stage in the lesson as possible, provided that by so doing he does not sacrifice the effectiveness of their work. Long-winded preambles, e.g. in a painting lesson where the children are most anxious to get on with the fascinating business of using colours, etc., are likely to dissipate their energies, tinge the whole activity with disappointment, and to lead to a loss of interest and poor response.

Interest in the acquisition of skills is greatly affected by the nature of the activities which the teacher selects. The success of step I, and of the following steps, will therefore be largely dependent upon this selection. Some skills which we teach, e.g. handwriting itself, are very complex in their natures and depend upon a very large number of subsidiary controls. Are these subsidiaries to be taught one at a time, bit by bit, and at the end the whole lot built up into a composite organisation—writing? Herein lies a very controversial problem.¹ Some teachers believe that handwriting should be a disciplined development of children's natural propensity for scribbling, just as speech develops from the baby's babbling. Others maintain that it should be synthesised out of a number of acquired skills in making "pothooks" and the like. The controversy between the "pothookers" and the "scribblers" is one which will probably never be resolved with satisfaction to both sides, since each is right, up to a point. The practical solution to this and similar problems seems to the writer to come from a consideration of the pupils' viewpoint. Children are most likely to have the will to learn something if they can realise the need for learning it and if they can be got to feel that the effort required will "pay a dividend." Therefore, in the case of all highly complex skills, the teacher should select from them a teaching "unit" which in itself will be interesting for the pupils and be something they feel is worth mastering. This unit must naturally fall within the range of achievement possible to the particular children who are being taught. Its later use in a higher organisation can be effected when the need for it is felt by the pupils.

¹ We have met this problem in another connection (pages 100-101).

A careful selection of activities by the teacher, so that the several skills involved fit naturally into their developmental sequence will go far to make step I an easy one to effect. The previous work, as it were, prepares for the present activity by suggesting the desirability of the new advance in its natural setting. Particularly valuable is this type of approach in craft-work where, in a carefully planned course, difficulties are encountered which necessitate the acquisition of a new technique or use of a new tool (see p. 105). The introductory step arises, then, out of the work in hand and requires little or no emphasis from the teacher.

Presentation

This step will ordinarily proceed by two phases :—

(A) The appreciation by the pupils of the nature of the activity concerned. The teacher's part in this will be demonstration or some other presentation of the model to be copied, together with a suitable explanation to help the pupils' comprehension.

(B) The performance of the skill by the pupils themselves, under the guidance of the teacher so that they learn practically how to carry it out.

A—APPRECIATION

Some teachers, believing that demonstration restricts children's intellectual opportunities and creative impulses, prefer to allow their pupils to work out their own salvation in their own way. It is, moreover, a fact that children, if they are given the materials, can in very many cases somehow or other acquire some degree of skill in their use. However, they sometimes adopt very uneconomic ways of doing things, a number of harmful habits are consolidated, poor progress in the skill is made and they frequently become disheartened. The purpose of this step is to give them the benefit of the experience of experts, to which they are entitled. Many of the skills which they learn have roots in crafts with a long historical development, during the course of which the cumulative experience of craftsmen clearly indicates the most economic and effective ways

in which tools are used and operations performed. Other skills, e.g. gymnastics, involve controls and movements which may defy the analytical powers of young untutored minds without assistance from others. The aim of teaching skills is not to turn out a crop of machine-like automata, a mass-produced crowd of uniformly drilled human beings; but rather to enable the children to acquire skilled movements and controls which, while they are based upon the best known patterns of action, will bear the marks of their own individualities. Great teachers of the arts and crafts have always taken the utmost care to cultivate the individual qualities and characteristics which they find in their pupils and to avoid a closely patterned precise product.¹ The teacher will, therefore, do well to bear in mind during this step that his task is mainly to place his superior experience before the pupils with a view to their acquisition of a skill in the ways which are best suited to them individually.

THE TEACHER AS PERFORMER

“Those who can, do ; those who cannot, teach.” We owe to Mr. Shaw this oft-quoted remark. It may suggest that teachers come from the ranks of those who are not practical exponents of any art or craft. It does not say, however, that those who “can do,” cannot teach. Many of our finest exponents are in fact excellent teachers, though it must be admitted that the possession of skill is not a guarantee that a person will be able to teach others effectively to acquire that skill. To be able to do something really well is a very valuable asset and a good starting-point for a teacher.² His performance is likely to set the standard

¹ E.g. the late Professor Edward Rowsby Woof of the Royal Academy of Music was a great teacher with a keen eye for the individual qualities of his pupils. These include eminent violinists of to-day who show marked individual differences, not only in their musicianship, but also in their techniques.

² Similarly in the matter of the development of knowledge and taste, a teacher can never know too much about any subject he professes. While a high standard of scholarship is of course no guarantee that its possessor will make a good teacher, its attainment by a teacher, otherwise qualified for his vocation, is a most valuable asset to him in his teaching.

for his pupils and to become the model for their imitation. He may be able to "borrow" a performer, or show cinema films, or still pictures, or describe what has to be done. It will give him a better insight, however, into the more significant items to which the learners' attention should be drawn if he himself has had practical experience as a performer.

The teacher must, however, be more than a performer. He should not only be able to do something but he must also know *how* he does it. These are not quite the same things. Knowing how an action is performed involves an ability to analyse the movements concerned into their components, and to evaluate the purpose of each of these, together with the part which it plays in the finished product. Motion picture studies, books, and previous experience will help him here, and a careful study of these is essential to a teacher. This will probably reveal to him quite a number of components which have hitherto been unnoticed, especially when he is dealing with complex skills.

DEMONSTRATION AND EXPLANATION

In the demonstration itself the teaching procedure will depend upon circumstances. If a relatively complex activity is to be broken up into teaching steps, the teacher is advised to demonstrate the whole activity first, so that the pupils may see how the several parts fit into the whole pattern. For example, the whole of a dance routine, or a substantial unit of it, should be demonstrated before going on to the steps themselves.

The teacher should demonstrate the movements of the teaching unit he has selected : (a) in working *tempo*, to set the goal and standard for the pupils ; and (b) in teaching *tempo* with appropriate explanations. Demonstration (b) should be so carried out that it shows clearly to the learners the more significant features of the movements, the relationships which they bear to one another, the positioning of limbs, etc. E.g. in teaching the use of a chisel or plane, the positions of the hands and fingers, the actual movements of the arms, relative pressures at different parts of the movement, method of return, etc., are indicated clearly and broadly

as well as in their working setting. The actions should be slowed down, stopped and restarted, or repeated to emphasise the teaching points.

The purpose of the *explanation* which will accompany the demonstration is, to enable the children to take an intelligent interest in the proceedings, to grasp the purpose of what is being done, and to develop their understanding of how to do it. Insight into any process tends to hasten the acquisition of skill in that process through the added mental control which it brings. Explanation should not be too wordy¹ nor too "finicky." The more important features are the ones to stress. Too many teachers make their explanations too exhaustive and talk too much. If the class is watched carefully the pupils' facial expressions, particularly the look in their eyes, will tell the teacher whether they have grasped what he is trying to get across to them. A few well-timed questions, asked of individuals, will also help him to gauge the effects of his work. If the children themselves are encouraged to ask questions the teacher can often learn a great deal as to their view of it all. Although the children are observers and not actors at this stage, they should not be merely passive spectators. Each should be noting how the activity is performed and, in imagination, doing it with the teacher. The aim of the latter should be to get them on to the performance of the activity as soon as they are ready for it. This is not necessarily when they *think* they are ready but when they are sufficiently primed to be able to profit from the practical work involved.

In recent years a tendency has crept in to teach correct movements by first demonstrating the wrong way to do them. There is no disputing the fact that faulty methods of procedure may

¹ The best teacher of skills of a certain type which the writer has met was an almost inarticulate Army instructor. His subject was "Surmounting Obstacles." With a "Here! Like this!" accompanied by a perfectly portrayed teaching demonstration, attention was drawn to the important components of each skill. The successive movements were analysed; demonstrated by broad movements of limbs, and the relative positions and functions of parts of the body indicated with remarkable clarity. His total "explanation" consisted of a few grunts and an occasional "This! Not that! Break y' arm!" etc. Yet the whole demonstration was a model of eloquent "physical language."

often indicate the correct ones very well. One of the best teaching films which has ever been produced was that in which Mr. Will Hay tackled the problem of extinguishing an incendiary bomb. The correct way stood out in literally "flaming" relief against the background of the artist's errors of "omission and commission." The teaching setting, however, was very suitable for this treatment and the instructor was certainly unique. As a general method of approach in ordinary teaching the stress upon the incorrect aspects needs very careful handling. It can easily lead to confusion in the learners' minds, and it may even suggest ways of going wrong to some children. The teacher himself must judge, by consideration of the particular circumstances of any piece of teaching, whether the learners are likely to derive much value from this somewhat negative approach.

Safety precautions to be taken in physical training, or in the use of apparatus and tools in science and craft, will naturally be emphasised at this stage. Even here, however, whenever possible, it is better to tell the children what to do rather than what not to do. E.g. instead of "Don't put your left hand in front of the chisel!" it is preferable to phrase the injunction, "Keep your left hand *behind* the cutting edge!"¹

B—PERFORMANCE

In this part of the Presentation the pupils' activities are of paramount importance. Through the actual exercise of their physical machinery they proceed to learn how to carry out the movements involved in the skill demonstrated and explained to them in phase A.

¹ The writer remembers in this connection how, as a young and inexperienced science teacher, he was instructing a group in how to test gases by smelling. Impressing upon them the need for caution, he finished up by seizing an apparently empty gas jar and said, "Don't do this!" Suiting the action to the word, he thrust his nose into the jar and took a good sniff of what proved to be 88 ammonia. The lesson ended very abruptly. The result was not quite so disastrous as in the case of the instructor who was demonstrating an industrial operation to a trainee during the War. This unfortunate finished up his instruction with the injunction, "Whatever you do, don't do that!" and the accompanying demonstration left him short of two fingers with a fainting trainee on his hands.

Except in the case of very simple skills, or of relatively limited extensions and variations of skills which have already been mastered, it is highly unlikely that both Presentation and succeeding Practice step will be completed in the one learning period. It may even require a number of learning periods to complete this particular phase.¹ As we have already noted, moreover (see p. 106), this teaching step and the succeeding one are likely to merge. This will be especially notable where individual abilities spread the achievements of the pupils in a marked way.

The teacher's aim throughout this step, whether it is a short or prolonged one, will be to facilitate the pupils' learning by supervising and guiding what they do. His purpose is to assist each individual learner to proceed economically and effectively through the processes which are described in detail in pages 42-45. He will help pupils where necessary, *and only where necessary*, to select the movements which will bring them success in the performance of the skill and contribute to their mastery of it. The whole case for any interference on the part of the teacher in a pupil's acquisition of skills rests upon (i) the desirability of detecting in the early stages any unhelpful or hindering components which are likely to get "caught up" and consolidated by subsequent practice, (ii) the possibility of indicating to the pupil helpful movements which he would otherwise be unable to detect, and (iii) the need for helping the child to experience the feeling of success which is essential if his interest is to be sustained. If, therefore, a child is doing well he should be left alone unless the teacher sees dangers ahead for him, and individual variations should be respected unless they are of such a nature as will hinder subsequent development.

The teacher's attention is once again drawn to the fact that success of a performance in the first stage is not to be judged merely by the results. For example, it is not enough for a child merely to sound a series of notes upon a piano without regard to the fingering which he uses, nor for him to push and pull a saw in any

¹ E.g. in learning to swim this phase may require a whole course of lessons. Later, however, the accomplished swimmer can learn a new dive or stroke and reach the Practice stage in a single lesson.

old way across a piece of wood, even if the result is a passable "cut." The method of effecting a movement may well be, from the point of view of the subsequent development, of much greater importance.¹ A delicate handling of this aspect is needed by the teacher since, as we have already indicated, the children's main interests are likely to be centred in results. A very careful approach is therefore necessary, otherwise interest may be killed by an over-insistence upon restriction of movements to narrow patterns, or it may die naturally as a result of the children's subsequent failure to progress. The teacher, in his supervision and guidance, must, therefore, pay regard to these possibilities and by his personal influence, knowledge of his subject, and familiarity with the individual temperamental characteristics of the pupils whom he is teaching, so grade the conduct of the activities that these extremes are avoided.

SUPERVISION AND GUIDANCE

The method of supervising the learners' practice will be determined largely by the nature of what is being learned. The teacher may find it useful to adopt a "drill method" of approach in which, in imitation of the model which he will once again demonstrate and possibly re-explain, the learners perform the operation step by step as he directs. This has the advantage that he can see what each child is doing at every stage. It has the disadvantage that for some children in a class it may involve a disintegration of consolidations already effected by them in connection with other skills. It may also tend to automatise the whole process to the detriment of subsequent performance and make it jerky or irregular. On the other hand, in certain skills it may be completely impossible to employ this method. You cannot, for

¹ Many indifferent performances in games and in craft-work result from a concentration upon results in the early stages. The consolidations which result from subsequent practice become so firmly knit that relearning is almost an impossibility. The writer's swimming is indifferent for this very reason. He was "self-taught," acquiring a number of deeply seated, firmly established unhelpful subsidiaries, which even now take over whenever his mind wanders from conscious control or he begins to feel fatigued.

example, do a high dive in bits and pieces. It may, moreover, be highly undesirable to break up a movement, e.g. in the use of many tools in craft-work and of materials in art. It is the "wholeness" of the movements employed which is the essential feature of their performance. In cases like these it is obviously essential that the performance, even in the first stages, should be of whole units or of substantial parts of them.

Whatever method is adopted the teacher's attention should be upon the actual individual performances of the learners. Whatever advice and guidance he gives should be directed towards enabling any individual to select and practise the variants which *for him* will bring success in his performance as well as help to eliminate those which are harmful or unnecessary. Any physical assistance which the teacher himself gives, or which he may appoint another pupil to give, should be withdrawn at the earliest opportunity at which it is safe to do so. The confidence of some pupils may be undermined by prolonging aid beyond the stage where it is really necessary.¹ The aid becomes so firmly established, that the pupil "learns" it as part of the whole activity. He cannot then subsequently dispense with it without losing confidence.

Any "corrections" of the pupils' movements should be designed to fulfil the purposes of the teaching as indicated previously. The essential characteristic of any correction is that although it may be initiated by the teacher, the actual correction is made by the pupil himself, i.e. things are put right by him. It is insufficient to tell "A" that he is doing something wrongly in so far as he is doing "X" and not "Y." The teacher should see that "A" himself realises that he is doing "X," and, if possible, why he is doing it. He should then endeavour to get "A," in his actual practice, to do "Y" and not "X." That is, correction is essentially a matter for the pupil himself to effect. Too frequently the significance of this is not realised by over-pressed and busy teachers. In so far as teachers fail to give practical effect to this principle they lay up further trouble for themselves and for their pupils.

¹ E.g. the prolonged use of "Aids" in swimming sometimes prevents learners ever swimming.

Practice

When once the learner has mastered the first stage in learning a skill, i.e. when he has found out practically how to perform the correct or best movements concerned, the improvement of his performance can proceed. He requires to develop this so that any slowness, clumsiness, jerkiness, uncertainty, or hesitancy in his movements give place to a smooth, neat execution at working tempo, controlled easily and confidently. This is effected by practice.

That "practice makes perfect" is really only a half truth. Without practice progress cannot be made, but the essential feature of progress towards perfection lies in the nature of the practice which is undertaken. Practice of the right kind will assist, whereas drill or mechanical practice performed by a pupil who has little or no interest in what he is doing can have little or no value. It may in fact have just the opposite effect through the intrusion of poor controls which may militate against any subsequent development.

The function of the teacher, in the Practice step, is therefore to secure the conditions necessary for the pupils to have the right kind of practice, and to supervise and guide this practice so that the best possible effects are obtained from it by the individuals in his class. The right kind of practice is that which is carried out by interested learners, anxious to master an activity, who are practising correct and helpful movements only under conditions which facilitate their learning.

The length of practice periods is a matter of prime concern in the teacher's arrangements of the conditions. A prolonged practice period may have harmful effects. Even when our interest is maintained we experience a falling off in our performance if we continue to practise ourselves "stale." It gets worse and worse and more disheartening. This may arise from a variety of causes of which fatigue is a predominating one. When we are fatigued, nervous energy seems to over-run its usual conduction-units and to bring a number of others into play which may not be particularly helpful. Practice during such a condition may end up

in nothing better than the consolidation of a number of unhelpful or even harmful factors. The control then becomes uncertain and confidence is undermined. The delicate musculatures controlling the finer movements of the fingers and the adjustments of the eyes are the most easily fatigued organisations in the whole human body. The fatigue products from these sources get into the blood stream and produce a general feeling of lassitude totally out of proportion to the amount of hard work which has apparently been done. The musculatures concerned, however, recover comparatively quickly after a short rest period. Teachers, therefore, should be careful not to over-fatigue their pupils, particularly in such activities as reading, writing, and fine hand-work, and should so arrange the practice periods that variations in the types of activity involved will give opportunities for recovery of the worn-out tissues.

A "rest" period may have other values besides those of recuperation. The German proverb, "We learn to skate in summer and swim in winter," seems to suggest that learning can go on in some way after we have actually ceased to practise. Some authorities maintain that any such development is impossible, and that it only appears to be a possibility because of the recuperation from fatigue which the rest brings. Other authorities claim to have established proof of the existence of sub-conscious consolidation processes which facilitate learning during "off" periods. From a practical teaching standpoint we are not concerned with these claims and counter-claims except in so far as neither side disputes the fact that rest periods or pauses, in addition to the variations which we have mentioned, do have a beneficial effect upon learning. The pupils return to their tasks reinvigorated and often there is an apparent improvement in their skill.

TEMPO AND RHYTHM

Most skills have a tempo and rhythm of their own. On page 122 it was noted that the teacher was concerned with "working tempo" and with "teaching tempo." The "learning tempo"

of the earlier stages will not necessarily be the "working tempo" unless the skill is such that it cannot be slowed up. The several component movements of a skill which children make in the course of their learning, tend to be slow since they are deliberately made under the conscious control of the learners. These must be speeded up smoothly and uniformly as the whole co-ordination and consolidation proceeds. The teacher therefore seeks to aid this process during the Practice period, without sacrificing accuracy of control or effectiveness of movement.

One of the greatest aids to this development, which will affect not only the tempo but also the actual co-ordination of the movements involved, is the use of rhythm. Rhythm is fundamentally an appreciation of pattern. When the rhythm of a skill is mastered the learner can feel the pattern of it carrying him along.¹ Rhythmic practice, therefore, should be used in all skills wherever possible, since it is something to which children are particularly susceptible.² Repetitive acts of skill, e.g. in physical exercises, sawing and planing in craft-work, writing, etc., lend themselves particularly well to this kind of treatment, though, of course, other types of skills are not so readily adapted to this process of "dancing through."

¹ The dancer will appreciate how the rhythm which features so largely in his art enables him to co-ordinate his movements, and how rhythmic exercises lead naturally to ease and smoothness of performance.

² The teacher will note how children themselves tend to form rhythmic patterns out of activities of the repetitive character, e.g. the ONE ! two ! three ! four ! which they sometimes develop out of their marching by giving a concerted foot slap on the first step, and stresses in the chanting of tables and the like.

The appeal of rhythm was well illustrated recently when a radio artist in a Children's Hour party endeavoured to get the audience to give a couple of hand-claps at the end of each line of his song. The matter was taken out of his hands by the children themselves who clapped out the rhythm of the whole song enthusiastically and with first-class effect.

Rhythm makes an equally strong appeal to adults, e.g. the stamping of the audience which accompanies the hornpipe in the late Sir Henry Wood's Fantasia which is played at the last Promenade Concert of each season is a tradition which takes its root in the same source. Under the influence of the "end of term" feeling, with its slackening of "concert discipline," the audience do something which at many times previously they secretly have been longing to do.

PROGRESS IN LEARNING SKILLS

One of the difficulties which teachers experience in estimating the progress which their pupils are making during Practice periods arises from the fact that we can only judge that progress from the evidence available, i.e. from the observable results. These may not always be an accurate measure of what the learner has actually achieved. For example, when a child begins learning to swim he may not, at the end of three or four lessons, be able to swim a stroke, yet very considerable progress may actually have been effected. He cannot yet swim but one could not with certainty say that he has learnt nothing. When eventually he does swim, what he did learn in the first three or four lessons, though it was in the nature of a hidden achievement, will have its effects upon the final result.

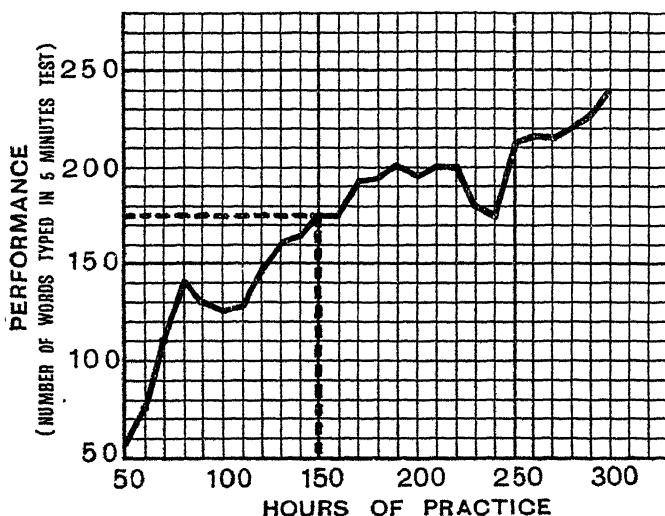
There is another way in which the assessment of progress through measurable results is likely to prove deceptive. The accompanying figure is a typical graph of progress in a skill. It represents the progress of a pupil in typing, which is a skill of a complex character involving the development of physical elements as well as of other habits in which the physical machinery of the learner is not so ultimately concerned.¹

Examination of the graph will reveal a number of interesting features. The progress of the pupil, measured in terms of typing output, is not a uniform business showing regular increments in

¹ Those readers who are familiar with graphical methods will read this graph quite easily, others can grasp its significance if it is pointed out that the irregular line traces out the performance of the learner in typing words during 5-minute test periods at regular intervals during her practice. The graph can be read by looking upwards vertically from a point in the horizontal base line until the irregular graph line is met and then reading the corresponding point on the vertical performance line on the left. Thus after 150 hours' practice the pupil's performance was 175 words in a 5-minutes' test period (see dotted line).

The data for this graph were obtained in a repetition by the writer of the experiment described by Peter Sandiford in *Educational Psychology* (Longmans), p. 210. Only the most general inferences should be drawn from the shape of the curve as the writer makes no claim for great scientific objectivity in the measurements which were somewhat rough and ready, since, owing to the protracted nature of the experiment, he was unable to give personal attention to all the test conditions.

proportion to the time spent in practice. Learning a skill is a growth of sorts, and growth of any kind is very rarely uniform, as we have already noted in connection with children's physical development (see p. 14). In this case we note a fairly steep rise in output up to the completion of 80 hours' total practice. Then apparently 40 hours' more work seem to produce poor returns, with no increase at all but a definite drop in the results. After 120 hours' work the output increases steadily, but not so rapidly



as in the earlier stages, until another "set-back" is experienced. How are these fluctuations to be accounted for?

Many explanations have been forthcoming for these irregularities which appear in individual learning curves. Boredom and fatigue are possible explanations, and some authorities assert that if these two factors can be eliminated these fluctuations need not occur. The problem for the practical teacher, however, is that they do frequently occur, even when every care is taken to avoid fatigue, and when the learners are intensely interested and anxious to improve their performance. One promising explanation is

that "marking-time" or "set-backs" are likely to occur when, in the development of complicated acts of skill, the learner is advancing from dependence upon one set of habits to those of a higher order. According to this view a speculative explanation of the example we are considering would be as follows. For the first 80 hours' practice, the learner was developing the habit of single symbol reproduction, i.e. learning to type letters, figures, etc., as single units. Then a new habit of typing these, not as units but as components of groups each of which itself was a unit, was being evolved, i.e. the typist was developing syllabic typing. This evolution of the higher order of skill exerted a disturbing influence upon production until it became established after 120 hours' practice when the learner went ahead. The evolution of word typing habits occasioned another set-back later after 120 hours' practice. Whether this explanation is over simplified or not, it does suggest what is an observable fact, that the progress of pupils is likely to be influenced by factors which are not directly controllable by the pupils themselves nor by their teachers. It also suggests that practice, at different stages in the development of a skill, may not necessarily be of the same quality or of the same elements throughout. The teacher's guidance and supervision should, therefore, be adjusted to meet any such changed conditions which he may observe.

"Nothing succeeds like success" when pupils are endeavouring to master skills, and it is equally true to say that nothing discourages the learner so effectively as lack of it, especially when it follows a run of good progress. When the period of marking time¹ or positive deterioration is unduly protracted, the learner may fail in the crisis and give up trying. Many musical instruments now lie unused and a deal of sports equipment may pass on to other "hopefuls," because their original owners have struck up against barriers in their progress which they have been unable to overcome. A discerning teacher can often diagnose the cause of these as something closely resembling what we have here described and can "stiffen" the learner's will-to-learn sufficiently to encourage him

¹ Sometimes represented as a *plateau* in the learning curve.

in the persistence of effort necessary to carry him through the crisis.

FURTHER PRACTICAL CONSIDERATIONS

We have described, in the foregoing pages, a technique which is strictly in conformity with the workings of the natural processes by which children acquire skills. It must be borne in mind that in the application of this technique we are dealing with human material, one of the outstanding characteristics of which is its variability. All attempts in the past to "psychologise" education so as to provide an instrument which is universally applicable to any and all types of children have failed for this very reason. The teacher, therefore, will perforce have to make modifications and adaptations of the general pattern of instruction which we have indicated here. These modifications will be relative : (i) to the capacities and needs of the particular children whom he is teaching, (ii) to the activities with which they are concerned, and (iii) to the facilities which are available.

It is perhaps in the selection of the activities which he uses that the teacher will have a great deal of hard thinking to do, for upon this as much as upon the teaching method employed his success or failure will depend. Activities should be selected and carefully graded in difficulty, so that they are within the capacities of the children ¹ (see p. 111). Little success can be achieved when trying to teach something which involves a wide range of subsidiaries which have not yet been mastered, though the teacher need not be too insistent upon every single one of these latter being completely established before making any major advances, e.g. in writing, painting, physical training, dancing, etc., many minor achievements can be effected by the children in some skills and taken in their stride. The teacher in planning his work should,

¹ The "felt" needs of children are often deceptive. Children tend to be inordinately ambitious and to over-estimate their own physical powers. They thus often appear ready and anxious to undertake activities which are much beyond them. Careful handling of the situation is necessary as the teacher requires to maintain interest in what can be achieved without damping down the children's enthusiasms.

therefore, do it with an eye to what has gone before as well as to what is to come. Children like not only to experience the feeling of familiarity which comes from the use of some skills which they have already mastered, but also to try out their powers on the new and unfamiliar. This tends to reinforce the feeling of success which is the essential accompaniment of all progress.

The emphasis which has throughout this section been placed upon the need for the learner to experience the satisfaction arising from successful achievement should not mislead the teacher into underrating the need for effort and hard work on the pupils' part. The teacher's attitude should always be one of helpful encouragement. But he should take care that only "those who earn the palm shall wear it." The best that each individual child is capable of, and nothing short of it, should be "good enough." Mere superiority of one pupil over his fellows is not in itself sufficient to merit especial commendation from the teacher. Really solid progress by a straggler who is giving his all in a hard fought battle is more worthy of this distinction.

The teacher should endeavour to resist the temptation to concentrate upon his "show pieces," the pupils who in their achievements pay handsome dividends for the expenditure of his teaching efforts. These should receive the attention to which they are entitled, but so should the rest of his group, including the "butter-fingered" and clumsier members, even though the returns may not be so obviously profitable. Some of these children are naturally clumsy. Their neuro-muscular equipment may not be such that it lends itself easily to the development of new co-ordinations and organisations, their sensory equipment may be defective, or they may not be in good health. Other children may be clumsy and awkward as a result of defective habit formations which have been made earlier in their education. There is a third group of "physical illiterates" whose difficulties are occasioned by deep-seated emotional disturbances and maladjustments. The teacher must endeavour to diagnose the causes of the difficulties which "awkward" children experience. Where remedial measures are possible, e.g. in the cases of earlier defective education, he should

endeavour to make good the foundations. In other cases, particularly those in which there are emotional disturbances, he should take care not to aggravate troubles and, if it is within his powers, he should endeavour to co-operate, under the direction of the proper authorities, in any remedial treatment which may be prescribed. As a general rule, however, the teacher's attitude towards all children who experience difficulties in developing physical skills should be one of sympathetic encouragement and watchful guidance. The psychological effects of harsh or unguarded criticisms of the efforts of any normal child are unpredictable, while they may have very damaging effects upon children who are the victims of emotional troubles. Ridicule of such children by their fellows may have equally harmful effects. The teacher's task, therefore, is to ensure that, while the acquisition of skills secures for the abler ones in his group a full measure of the increase in confidence which this naturally brings, the slower and less able children are protected from the damaging effects which marked deficiencies in these skills may have.

Under the normal conditions which obtain in most schools teachers will find that attention to the following practical points will materially assist them in the running of activities of the kind we have in this chapter considered :—

1. All apparatus, tools, and materials, which are required for a particular period should be assembled before the activity starts, and examined with a view to determining whether they are in suitable condition for use by the children.

Defective materials should, if possible, be rejected. "A bad workman blames his tools," but the best workman cannot do much good with bad tools. We cannot, therefore, expect the struggling learner to get much satisfaction from their use. Any apparatus or tools which, through damage, are dangerous should never be given to children.

2. All materials should be distributed, ready for use before the activity begins. This will avoid irritating interruptions which break up its continuity and distract attention. In the distribution the teacher should have an eye to the suitability of any tool for

use by particular individuals in his class. An unmanageable tool or piece of material will be a hindrance to any child's development.

3. The children should be so spaced that freedom of movement is possible. Cramped conditions in which one child interferes with the movements of another are not desirable.

4. The physical conditions under which the activity is conducted should be suitable. Attention to the ventilation of the room, to the lighting, to the correction of unhealthy postures, etc., is essential in all school work, but it is particularly important during physical activities, not only for its general effects, but also for its specific effect upon the particular learning which is involved.

ACCIDENTS IN SCHOOLS AND RESPONSIBILITIES OF TEACHERS

A teacher's moral responsibility for his pupils' welfare and safety is one which the writer hesitates to attempt to define. It is largely a subjective matter, and teachers as a class show no inclination to set an upper limit to this responsibility. The lower limits, however, are set by the legal responsibilities which teachers have in respect of the physical welfare of their pupils. In brief these are as follows :—

A teacher's responsibility is limited to seeing that *every reasonable precaution* is taken against exposing his pupils to the risk of injury. This involves his—

(i) preventing them from using apparatus, tools, etc., which he knows, or should know, to be defective and consequently dangerous in use ;

(ii) ensuring that the activities in which his children are engaged are suitable for their physique and intelligence ;

(iii) making absolutely certain that his instructions and orders are full, clear, and precise, and moreover, *that the children have understood them* ; and

(iv) being able to control the children well enough to ensure that his instructions are actually carried out by them.

These items are listed here for information, but in passing it might be mentioned that they form a good common-sense guide

to the beginner, who might with advantage apply them as criteria to any activities which he may conduct in school.

CONCLUSION

In pre-War days a movement was gaining ground in education to attach greater importance to the development of children's physical powers and to the "practical subjects" than was customary in the somewhat "bookish" type of schooling which for so long had held the field. During the War this movement gained impetus through the enhanced values which the "practical" derived from the vital national needs. The movement itself, however, takes its roots in most important educational principles. As we have indicated in this and in preceding chapters, children are active beings craving outlets for the expression of their super-abundant physical energies. It is the function of education to utilise these energies to the best advantage, i.e. in the service of the children's own development. When physical skills are acquired, energy is disciplined into useful patterns of action enabling the child to respond to his environment with increased confidence and with greater control. Interests are developed, experience is enriched, and substantial contributions may be made to his mental life. Through the development and exercise of skills, therefore, life can be made healthier, more interesting, and more useful.

Some of the skills which we teach children are means towards ends, e.g. handwriting and the use of tools in handicraft and materials in art. Others are ends in themselves, acquisitions which are valued by the exponents for the joy which their exercise brings, e.g. dancing, gymnastics, and swimming. It was a common practice at one time to teach all physical skills as ends in themselves, e.g. much handwriting was taught with little or no regard for what was to be written, and "manual" training was often little more than a progression through a series of uninteresting technical exercises. The inevitable reaction against these practices has perhaps led to an under-evaluation of the educational contributions which physical skills can make. An attempt has been made

here to present these in their true perspective as really vital factors in the educational process.

There is a social aspect of development which is related to the problems we have considered. One of the tendencies of modern life is for the general run of the members of the community to become spectators rather than performers and players, and to be entertained by others rather than to entertain themselves. While acknowledging quite freely that a deal of healthy recreation, and possibly of enlightenment may be obtained by a mere spectator, it might be pointed out that a too exclusive assumption of this rôle cannot in the long run fulfil all the needs of the average person. Circumstances of vocation and tastes in leisure occupations vary from one person to another, but it is now commonly accepted that some form of practical expression of creative impulses is good for the vast majority. At least schools can give pupils the opportunities of developing practical skills which will serve the children's needs for practical activities in their leisure time. In this way they can fulfil a very important social function and help towards the solution of one of the major problems of modern society, viz. the proper use of leisure. Many adults excuse their own individual and social shortcomings on the grounds that they have never had the opportunity of learning to do things they would very much like to be able to do. By laying the foundations and providing the means for their pupils' active participation in games, crafts and artistic pursuits schools endeavour to make some contribution towards remedying this state of affairs.

CHAPTER VII

THE DEVELOPMENT OF KNOWLEDGE

FOR many generations schools have been concerned primarily with developing their pupils' knowledge. Critics have from time to time been equally concerned with showing that the knowledge which many schools "purvey to their customers" is not always knowledge in the true sense of the word. "Erudition," state the critics, is not "wisdom." By this they mean to imply that a mental store of information, however well stocked it may be, is not necessarily the accompaniment of good intellectual power. For example, many workers have perforce to develop, within narrow limits, high degrees of skill and specialised knowledge of certain industrial and engineering processes. There is no guarantee that in so doing they necessarily grasp the wider scientific significance of the principles involved nor that they can apply them to situations other than those in which they customarily work. In school, moreover, we have noted how often learning does become a matter of developing a comprehensive memory for detailed facts which are not necessarily rooted in an understanding of the essential relationships obtaining among them. Mere verbalism also forms for some pupils the vehicle for their expression of ill-assimilated and half-digested general principles.

Modern movements in education, as we have already seen, are designed to remedy these defects, and take their rise from three main sources. First, there is the view that learning, even at the perceptual level, is not a matter of mere passive receptivity. We cannot "present" knowledge to a pupil in the same way that we can deliver so many gallons of spirit into a motor-car fuel tank or place books upon the shelves of a library. The learner's active participation in the business of learning is vital and essential. We here see the origin of the modern tendency to look upon all teaching as a matter of conducting "pupil-activity." Secondly, there is,

as we have noted, the view of the curriculum as a selection of human experiences. This impresses upon us the need for a human treatment of all school work, the necessity of appealing to the children's interests and the requirement that all school activities should be real and purposeful. The school world is bound to remain in a sense an artificial one since it is a specially designed organisation serving the needs of immature human beings. There is, however, an increasing tendency to bring school life into ever closer relationship with the life of the outside world, even to the extent of taking the pupils from the school into the outside world for real experiences of different kinds. Thirdly, we have the psychological contributions to which we referred in Chapter II. Here we saw how the development of knowledge proceeded from the levels of sensory and perceptual experience to that of conceptual mental life, the realm of organised and systematised knowledge.

These three influences have been responsible for very radical changes of outlook and of teaching methods in many schools. It used at one time to be the common practice to start most activities which were directed towards the development of knowledge, by a verbal statement of rules and principles, definitions and the like, i.e. the start was made at the conceptual level. Subsequent work was devoted to illustrating, amplifying and applying the generalisations to particular instances, "proving" that they were correct, "verifying" them, etc. (see p. 54). The results which these methods produced have been justly criticised. Pupils resorted to the device of overworking their memories and making the acquisition of "verbal knowledge" the main aim of their efforts, simply because the generalisations related to knowledge in which they were not particularly interested and, moreover, they were lacking in the background of real experience essential to their proper understanding of them. This practice is regrettably not even nowadays entirely a thing of the past since some schools for a variety of reasons, e.g. pressure of examinations or lack of equipment, still approach the teaching process in this way. The modern tendency in teaching is, however, to work the other way round and to base the development of the pupil's knowledge upon

his experiences, i.e. upon his sensory and perceptual contacts with his world. There is, however, a possible source of danger in this. Just as we used to begin our teaching by commencing at the level of organised knowledge and more or less failed to provide the pupil with the experiences from which this is derived, so now we may concentrate too much upon the experiences and neglect to organise these so that they make their due contribution to the pupil's mental development. The result is that while the children may have a series of interesting and informative experiences these may remain isolated and unrelated to their other experiences, "earthbound" so to speak. Our ultimate end is to develop the pupils' intellectual powers so that they can tackle their environment with intelligent understanding and confidence. In practice this involves some degree of systematisation of the results of their experiences and very considerable attention to the need for developing formulations and generalisations which require the children not only to have the experiences but to think, and think hard, about them.¹

The task of the modern teacher has not in one sense been lightened by modern developments. Gone are the days when the teacher could distribute the books to his pupils and order them to "learn" their lessons. This they did by getting the text committed to memory, and subsequently they were required to "say the lessons" over to the teacher.² Our altered views upon the

¹ Professor A. N. Whitehead, in his book, *The Aims of Education*, makes the following significant statement: "What education has to impart is an intimate sense for the power of ideas, for the beauty of ideas, and for the structure of ideas, together with a particular body of knowledge which has peculiar reference to the life of the being possessing it." This plea for "living thoughts" as opposed to inert ideas, or as Whitehead terms them, "dead knowledge," epitomises the modern attitude towards "knowledge" as an objective in teaching.

² The writer does not wish to disparage work of the "old-timers" in any way. They were pioneers in a strange land and were often very ill equipped for their labours. Much as we may condemn earlier practices in the light of our present knowledge, and against the background of our modern facilities, we should remember that these practices were, in their own time "modern." We ourselves live in an age of vast changes and rapid developments during which we are watching the evolution of a new social order and possibly of a new intellectual one. When we are evaluating the efforts of our professional predecessors, therefore, it is a salutary thought that less than a century hence we too may be "pilloried" for our "benighted" educational practices.

purpose and nature of education, together with the advent of smaller classes, have materially changed the nature of the teacher's functions. His pupils must still learn facts, e.g. formulæ, a few historical dates, spellings, tables, definitions, and the like. He must arrange, however, that this information is acquired by his pupils, not as an end in itself, but as material subserving their higher mental powers, e.g. that the formulæ are understood and applied to the solution of practical problems, that dates mark the "time order" of events and significant phases in history, that definitions become convenient forms for remembering what has been learnt from a variety of experiences, and so on. His main concern, however, is with the development of the pupil's understanding of the experiences which he arranges, i.e. with a living and vital process of human growth in which ideas that enable their possessors to exercise real mental control of their experience are the predominating features. It is in this respect that his task is infinitely more interesting and absorbing than that of his more remote predecessors. He has to endeavour to invest all the classroom activities which he conducts with a vital quality. His search for ways and means of doing this will inevitably lead him in two directions, viz. to a close study of the interests and capacities of his pupils, and to a view of school subjects from the human angle as the products of man's interests in life rather than as logically ordered systems of knowledge having little or no connection with essential human needs.¹

¹ The human approach to geography is an example of the way in which the modern outlook has influenced the presentation of school subjects. Geographical conditions and principles are approached by the study of the ways in which peoples live, their homes and occupations, their social and economic conditions, etc. In history also we see the tendency to study our modern institutions in the light of their history, to examine the problems which confronted man in times gone by in the light of the problems which confront us. In the teaching of science, however, one sees the most radical change in outlook. The infiltration of biological studies into the syllabuses, the development of the "biological outlook," in which general science is dealt with rather than the separate individual branches, physics, chemistry, mechanics, botany, etc., through a series of "topics" which are themselves deliberately selected as sub-topics of the one big topic "Living," are indications of the trend towards "humanising" school studies, cf. A. G. Hughes and J. H. Panton, *Elementary General Science*, I and II and III (Blackie & Co.), and A. G. Hughes, *Teacher's Book*, of the same series.

The teacher, however, will discover that traditions die hard, and in many schools he is likely to find methods in use which apparently accord ill with the outlook envisaged here. He is strongly advised to treat tradition with respect. It is the stabilising influence which carries us through stormy periods with a minimum of upheaval, and many of the traditional modes of "presenting" knowledge have very sound backgrounds. He should, however, view them with a critical eye and, where they serve no other purpose but to perpetuate methods which have outlasted their original usefulness or which conflict with the true nature of the learning process, he should be prepared to modify or replace them at the earliest opportunity.

With these general considerations in mind let us turn our attention to the experiences and activities which a teacher can arrange with a view to developing his pupil's knowledge. These, as one might expect, since they are so closely associated with human activities, are of a very wide range and variety. One might classify them in a number of ways, e.g. by reference to the subjects with which they deal, or by considering whether they are "first-hand" experiences in which direct sensory and perceptual learning is obviously involved, for example, in laboratory work in science, in visits to works and historical buildings, or whether they are "second-hand" experiences in which symbolisation is the medium of approach, such as in reading books, listening to a broadcast lesson, solving problems in mathematics, etc. This second classification is quite a useful one for the teacher, whose task includes the making of all experience as real as possible for the pupils. Where the conventional symbols of mathematics, language, etc., do not arouse adequate imagery and ideas to invest them with reality for his pupils, he must endeavour to supplement them by suitable illustrative material, or by simplification of the language so that they do "touch off" living elements in his pupils' minds. We can usefully borrow an idea from the film director in this connection. A photograph cannot really convey to the audience the whole reality of some experiences. For example, if we are standing on the top of Beachy Head there is the rush of

wind past our ears, the salt tang of the air, the "feeling" of height coming from our elevated position, the almost instinctive tension in our muscles "holding us back" from the cliff edge, etc. All these "co-enæsthetic" factors, as the film technicians call them, go to make up the total experience as well as the visual perceptions which we have. The film director is primarily concerned with bringing home to his audiences the reality of experiences, and he therefore uses all the devices at his disposal to make good the missing co-enæsthetic factors, e.g. clever camera angles, interplay of succeeding scenes and, perhaps, most important of all, music selected with this special purpose in mind. So successful are film directors in effecting this that we almost feel at times that no longer are we watching mere reproductions of real scenes but that we are actually participating in the experiences portrayed. The teacher has not the resources at the disposal of the film director, but within a much more restricted sphere he can borrow the technique of the latter. Where experience of the "second-hand" variety is thin in quality, or where the vehicle used for its communication to the pupils is not particularly suitable for them, e.g. the language may be too abstract or too difficult, or possibly even too simple, he should endeavour to bring to it vitalising factors which stimulate and inspire his pupils. We may go even further in the parallel between film methods and teaching. The documentary film, in the words of Mr. Grierson, is "the creative treatment of actuality." It is designed to bring out "meaning and purpose which escape the casual observer." Might not much teaching be also described as a creative treatment of actuality which is designed to bring out the underlying meaning and purpose of particular experiences for the children with whom we are concerned? This would cover all school experiences, whether they are obtained directly, i.e. at "first-hand," or indirectly, i.e. "second-hand," through the medium of speech, books, etc.

A. G. Hughes and E. H. Hughes, in *Learning and Teaching*, suggest another classification which is very useful when thinking in more detailed terms of the activities which teachers will direct in the course of their teaching. According to these authors

"There are two ways of presenting new knowledge—it can be told or it can be revealed. From the children's point of view it can be received or it can be discovered."¹ For example, the teacher can "reveal" knowledge to his pupils by arranging for them to discover relationships through practical activities, such as experimental work in science, visits to works and industrial undertakings, practical problems in the workshop or domestic centre, "play-ground" geography and mathematics, nature study rambles, or simple researches in books and libraries. On the other hand, he can arrange for them to "receive" knowledge by narrating, describing, and explaining things to them himself, or by their listening to broadcasts, their reading of books, magazines and newspapers for the information which they contain, their watching of films, etc. It must be remembered, however, that "receiving," as we have already noted, is not necessarily a passive affair. It should always involve some measure of discovery. For example, pupils might be set to read a book like J. B. S. Haldane's *Science and Everyday Life*,² with a view to widening their outlook and increasing their store of knowledge. They will come across many new and interesting ideas which will capture their imaginative interests and will in a real sense be "revelations" to them. Their actual experience when gathering the new ideas, however, will be somewhat different in quality from that which they have in a laboratory when they set out to discover practically by experimental work an answer to the question, "How do plants feed?" On page 135 of his book Professor Haldane *tells* the reader the facts about the foodstuffs plants need, but in the practical science course, under the direction of the teacher, the pupil *finds out* how they feed and what they feed upon, and in so doing learns not only a number of very interesting facts, but also something of the way in which men of science make their discoveries.

Both kinds of experience are valuable and important in education since, unable to discover within the span of an ordinary life, everything we should know, we must be told a number of things. For children particularly, however, what they themselves discover

¹ A. G. Hughes and E. H. Hughes, *Learning and Teaching* (Longmans), page 332.

² J. B. S. Haldane, *Science and Everyday Life* (Lawrence & Wishart).

tends to be more durable and to a certain extent more real than many of the things which they must be told. The same distinction between the "receiving" and "discovering" of knowledge may be noted within the scope of an activity involving exactly the same medium, e.g. reading and private study. A book like Mr. Winston Churchill's *Great Contemporaries* may very well be read by capable older students. From it they will "receive" a great deal of interesting information about personalities and the writer's evaluation of them. On conclusion, the reader may close and put away the book and leave it at that. On the other hand, his interests having been aroused, he may start to find out more about such personalities as Lawrence of Arabia, Douglas Haig, and Marshal Foch, to quote but a few of those dealt with by Mr. Churchill which the writer has found of particular interest to young people. This will involve considerable research and discovery through the medium of books, magazines, and even from old newspaper files. One discussion group in which the writer was interested chose to use Mr. Churchill's book in an entirely different way, viz. to attempt to evaluate this author's own standards of judgment by seeking answers to such questions as, "What are the qualities in men which the author most admires?" "What are the qualities which he is inclined to criticise?" etc. The book was re-read from this point of view by inquiring readers seeking specific information, research was carried out in the libraries, and discussion provoked. In other words "discovery" was the aim of the further work undertaken.

In fulfilling his functions the teacher will have occasion when "telling" and "revealing" knowledge to his pupils, i.e. in helping them to "receive" and to "discover" it, to employ a variety of techniques. Sometimes he will teach through the medium of oral work by narrating, describing, and explaining things to his pupils, possibly assisted by illustrations such as "still" pictures and films, models and diagrams, or the broadcast lesson.¹ At other times he may conduct practical experiences and activities

¹ Cf. p. 145. The illustrations, etc., are intended to "make good the missing co-enæsthetic factors."

such as laboratory work in science, dramatic activities,¹ private study, discussion groups, visits to places of interest, and so on. It is impossible within the scope of this book to deal with each of the possibilities which are involved, but a suggestive treatment of some of the commoner techniques and of the use of the more usual aids to teaching is offered for the teacher's consideration in Chapter VIII.

GENERAL METHOD

An example will serve to illustrate the general method of teaching which is applicable to activities which are aimed at developing the pupils' knowledge. Let us suppose that a teacher wishes to develop the notion of "area" with a class who have achieved the requisite standard in arithmetical knowledge and skills to enable this to be attempted, say a class of ten-year-old "A" stream pupils of a primary school.

There are many ways of approaching the topic, and the teacher will, out of those available, select the one which best suits the children he has and the facilities which are available. We will examine one of the several possibilities. To begin with, he wishes to obtain the children's interest. A practical problem is proposed. "We want to grass the spare plot at the top end of the playground. How much seed shall we require?" A search in the gardening book reveals that " x " ounces of seed are required for every "square yard." The class now views the problem in the light of the actual requirements. The "size" of the plot has to be determined. Measurements are made of the plot concerned, which, of course, "happens" to be a rectangular one since the teacher selected the appropriate site beforehand. The idea of the square yard is introduced practically by drawings on the board, markings on the floor, etc. The notions of the square foot, and of the square inch are also developed *en passant*. The problem of the number of square

¹ The dramatic activity here referred to is that in which the acquirement of knowledge is the main aim rather than the type to in which artistic objectives are sought. Play "making" is of this nature when a dramatisation of a text is made for the purpose of increasing the children's comprehension rather than improving their skill or developing their appreciation.

yards in the plot to be grassed is now approached. Drawings are made to scale, the sides of the rectangle are marked off in yards and crosslines are drawn revealing so many rows of "n" square yards. The immediate problem is now solved in terms of weight of grass seed. From a mathematical point of view it is really immaterial whether the grass seed is purchased and used upon the plot. Circumstances such as finance and desirability will determine whether this is done or not. The teacher's aim, however, is to lead the children to the discovery of how the area of *any* rectangular figure can be found. Further problems are proposed and solved in the light of the knowledge so far gained. Now comes a review of the particular cases dealt with in order to determine the "general rule." With or without the help of the teacher the children formulate this generalisation and record it suitably. Armed with this knowledge they are able to attack further problems in area of rectangles and are prepared to pass on to the next stage, viz. the area of shapes other than the rectangle.

In the teaching which we have here described, all the main steps of the general method applicable to teaching involving the acquisition of knowledge are seen. These are, generally speaking, the following steps, Preparation, Presentation, Generalisation and Application (cf. p. 107). The children's interests are stimulated, and they are *prepared* to discover the new knowledge by being confronted with the problem. The teacher then *presents* the new knowledge by conducting a series of activities to solve that problem and other problems which in due course are proposed. From these experiences the children are led to abstract or *generalise* the required relationships involved in the situations encountered. Finally, the new knowledge is *put to use* in solving further problems. Of course all acquisition of new knowledge will not necessarily show all four of these steps, as we have seen them here, in each lesson period, and possibly not in every "method unit." A rigidity in teaching which forces all activities into the mould would result in sterile work comparable to that of the Herbartian period. Suitable modifications of this general pattern of teaching must always be made to fit particular circumstances.

Preparation :—This step is one which is always essential in teaching (see p. 97). It may take a variety of forms, e.g. it may be one which the teacher can conduct very quickly by a question or two on what was being done in the last lesson, or by reference to a page in a text-book, or by asking a question to which the children cannot supply an answer simply to arouse their curiosity and set them off exploring possibilities. On the other hand, a complete lesson, or a series of lessons, may be necessary to prepare for a new topic, a visit to the theatre, a particular broadcast, or a visit to a works.

Very careful preparation by the teacher is strongly advised, especially where out-of-school experiences are involved. A great deal is likely to be taking place in a works, or at a place of historical interest, and if the children's attention is not pre-directed the visit may be wasted through distractions. The writer once had a bad failure through not making an up-to-date preparation for a visit to the local gas-works with which he thought he was perfectly familiar through his several previous visits. An entirely new system by which the retorts were charged by a most ingenious and amazingly effective electrical installation had been installed. The pupils' interests were immediately rooted in this fascinating device with its almost uncanny precision in operation, they were ill-prepared to profit by the scientific possibilities which it presented, and the comparatively sordid details of the manufacture of coal gas came as a devastating anti-climax.

Too frequently time-tables have to be arranged which involve changes of activities which are sometimes somewhat incompatible, e.g. a games period may immediately precede a literature lesson, or arithmetic may follow immediately upon the heels of singing and dancing. On the other hand, two sedentary lessons may run in tandem, the pair occupying together a rather protracted period of time. It is often a mistake to endeavour to rush the children straight from one activity to the other without regard to the nature of the change or the possible lack of it. The important thing at the commencement of any activity is to endeavour to get the right atmosphere for the work in hand, with the children in the appropriate frame of mind and mood, i.e. ready to learn.

One does not necessarily wish to waste time, but a pause between lessons of like kinds is often helpful. It tends to help the first lesson "to sink in" before it gets caught up in the children's minds with the second one. In other circumstances a few moments devoted to the singing of a song, to some puzzles, or to a "quiz" may be well spent. Too infrequently one hears in schools the playing of a gramophone record between lessons, or even for that matter during lessons where music could provide a good emotional background for the work in hand. When the change of lessons is from a vigorous physical activity to one of the sedentary type the need for a "step-down" of this nature is all the more obvious.

We have noted in Chapter III how new experiences are interpreted in the light of knowledge and experience which the learners already possess. In many lessons the aim of the Preparation step will be to bring up to the consciousness of the learners the more significant elements of that previous experience which will be required during the course of the ensuing activity. Half forgotten ideas can be refreshed, important relationships may be recalled, and if they are presented or re-presented in the appropriate way, the need for the new advance can be appreciated by the pupils. Too frequently new work fails because the pupils are not mentally ready for it. The foundations upon which it is to be constructed are faulty or perhaps missing. In this step an opportunity occurs for the teacher to ensure that his proposed development is not likely to be undermined by defects of this character.

At one time it used to be insisted that teachers should introduce every lesson by leading children up to a statement of its aim. The process was termed *eliciting*, and this often led in classrooms to some rather uneconomic practices. A treatment of the "Fishing Industry" would possibly begin with, "What did you have for breakfast this morning?" Almost every conceivable kind of side-tracking would occur, and the dietetic habits of the local community were likely to be revealed in detail. Much time was wasted, and more often than not, the particular foodstuff which the teacher wanted was among the last of those mentioned, if indeed

it was mentioned at all. The irrelevance of much of what was referred to and discussed, really defeated the whole purpose of the step which is to focus interest upon something rather than to diffuse it. Even perfectly relevant material is sometimes not quite so manageable as it would appear. The writer once used the class cricket team's score book as an introduction to "averages" in arithmetic. There was a great heightening of interest, not so much in averages *qua* averages as in the relative merits of our cricket "stars." As a result of a good deal of patient hard work upon the part of the teacher "averages" were eventually grasped, but the general trend of the interest which the introductory example had aroused was against, rather than with the teacher.¹ Most teachers could recount similar experiences where a most promising start to an activity has not fulfilled expectations either because it proved more interesting in itself than the subsequent developments or because it touched off some other interests of an unhelpful character which led away from the main theme.

The teacher, therefore, should try to conduct the Preparation step in the light of all the particular circumstances of the teaching he is going to do, and in accordance with all the relevant factors as far as he can possibly judge them. Too much time can frequently be spent upon this step which can easily become an end in itself instead of being a means towards an end. Quite frequently the best solution to the whole problem, if the teacher is sure that the background conditions are favourable, is for him to give a plain straightforward direction as to what is to be done and then to get on with it.

Presentation :—In this step the teacher must select from the wide ranges of activities which are at his disposal those which he thinks will best enable him to achieve the aim which he has in mind. As all learning is purposive so should all teaching be directed with definite objectives in mind. At the outset of any activities the teacher is advised to select these and to formulate them clearly

¹ The writer discovered later that he had fanned into flame an inter-street rivalry which had been long smouldering. "Civil war" eventually broke out, and the culminating battle took place in Southwark Park, S.E., during the summer holidays.

in his own mind. He will find that as a general rule he will be able to stick to his objectives. On occasions, however, he may find that they do not prove particularly suitable. He must be prepared then to modify them and re-direct the activity accordingly. It is a mistake to force home a plan of action which in practice is not working out well. This applies equally to the Presentation itself; flexibility and adaptability in teaching methods are always desirable. There is throughout this and the other steps the ever insistent need for keeping the pupils' point of view uppermost in one's mind. What the teacher himself does during the course of a lesson is really of relatively little importance apart from its effect upon the pupils. It is their activity, their mental processes and their interests which are of prime concern throughout. Teachers must beware therefore of allowing their own enthusiasms and experiences to dominate what is essentially a pupil activity. A lesson in which the teacher has given a good "performance" and enjoyed himself may or may not have had the desired tonic effect upon his pupils. Through the power of suggestion his enthusiasm may have "infected" his pupils, and the teacher is wise to show an enthusiastic interest in what he teaches at all times. Something more, however, is usually required than enthusiasm which has been "caught" from the teacher, some really positive effort on the part of the pupils when sound worth-while knowledge is to be acquired. The acquisition of knowledge is in an important sense a process of the pupils' growth and development. That is why it is often suggested that beginners should think of this step as "Development" and not Presentation. In this book, however, the former term is required for another use (p. 242) while it is clearly indicated that "Presentation," as used, implies close relationship with pupil-development (pp. 106, 140).

During the Presentation the teacher should always check up on the progress which his pupils are making. If, for example, a pupil "loses the thread" of an argument or becomes "bogged" in what to him is a morass of uncomprehended experiences, the stages which follow are meaningless, discouraging and confusing. The teacher himself, moreover, will naturally wish to find out as a

guide to his own teaching how far his pupils have comprehended what has been done. It is advisable to make this check at suitable times during the development rather than to leave it to the very end where all he may discover is that an early failure has invalidated most of the lesson. He must, however, take care that these sectional tests or recapitulations do not break up what is an essential unity into scrappy "bits and pieces." Not only is this need for periodical consolidation in the development necessary in oral lessons but it is equally important in a lesson, or in a course of lessons, which consists mainly of practical activities. For example, too frequently one may find pupils in school engaged in science experiments the purpose of which is only half apprehended, while the cohering features which should link all the relevant activities together may have been entirely forgotten. Not only, therefore, is it important to check what the pupils know of what they are doing but also of why they are doing it.

Generalisation :—This step is one which may take many forms, and it may not necessarily be present in every lesson which the teacher conducts. It is aimed at a clarification and a suitable expression of what the pupils have actually learnt. For example, when they have been discovering knowledge their experiences are reviewed, any misconceptions which they have formed are cleared up, evidence is weighed up and discussed in the light of other knowledge which they possess, judgments are made and criticised, and a conclusion is finally drawn. The teacher's main aim is to get the pupils themselves to do the essential thinking involved. Only as a last resort will he "tell" them, and this method is in the majority of cases tantamount to a confession of failure. In other activities where the pupils have been receiving knowledge, a summary statement of what has been learnt will often suffice. This may be composed with the help of the children as a black-board summary, it may be left to the individual children to make their own summary, it may be merely expressed orally, or it may be made the subject of a subsequent exercise or application. In passing it should be mentioned that the making of a summary note of any substantial reading, or of knowledge acquired, is a very

difficult exercise for most pupils, and some progressive training in note making should always be provided.

Application :—Of this stage little need be said here. Its importance is obvious, and the forms it may take are innumerable, ranging from the working of simple exercises and problems to a whole lesson or course of lessons representing a new development derived from the work in hand.

CHAPTER VIII

THE DEVELOPMENT OF KNOWLEDGE—*Cont.*

Some Common Techniques and Teaching Aids

IN Chapter VII we examined in outline the general method of teaching which is applicable to the development of knowledge. In this chapter we turn to an examination of some of the commoner techniques which the teacher can employ to foster this development and to a consideration of some of the aids which are at his disposal for work of this nature.

A. ORAL TEACHING

Oral teaching is a time-honoured method of "imparting" knowledge to pupils, and the vocal organs of teachers have for generations been among the most overworked parts of their teaching equipment. We have seen, however, that the modern tendency is to make ever-increasing demands upon the learners themselves to take a more active part in the learning process than was formerly the rule. In many subjects we attach the greatest importance to such pupil activities as practical experimental work, private study, and other types of school experiences in which the active participation of the learners plays a predominating rôle. It would therefore appear that oral teaching, in which the teacher communicates knowledge by the simple method of "telling," no longer holds the position of supreme importance that it at one time held in the days of very large classes with meagre supplies of books and equipment. In many respects this is perfectly true, but it would be wrong to assume that the teacher's oral work, however limited it may be, is unimportant, or that in his preparation for teaching the teacher can afford to neglect to develop the techniques concerned. However determined he may be to give pride of place to pupil-activity and to exercise the strictest economy

in his own use of language, and however well equipped he may be with apparatus, books, library facilities, etc., the teacher is bound to use speech as a means of communication between himself and his pupils, not only in the development of their knowledge, but also in helping them to acquire skills and to develop their tastes (see Ch. IX). Moreover, although our ultimate aim is to train our pupils to do without us and to rely upon their own abilities, to find out things for themselves from books, magazines, newspapers and the like, the younger pupils have to be brought to the stage at which this is possible. Their basic skills and knowledge must be sufficiently well developed to enable them to profit by practical work and private study, and oral teaching will undoubtedly be required to facilitate the development involved. With older pupils, moreover, it may not always be economic of time and effort for them to attempt to discover everything which they can reasonably be expected to know. Discovery is a relatively slow process, time is not unlimited, and knowledge of some things is comparatively less important than it is of others. The teacher, therefore, will be required to exercise his judgment in selecting from the multitude of possibilities those experiences which, in the light of their relative importance and the time factors involved, can most profitably be pursued by methods involving the pupils' own explorations. The missing gaps in their knowledge must be filled by other methods, among which oral teaching will figure prominently, while, even when the pupils are engaged upon discovery, there will often be the need for discussing and organising the results of their investigations.

Narration and Description.—Very frequently teachers have occasion to narrate, i.e. to tell stories, give accounts of events, recount transactions and the like, to their pupils. Narration is an art in itself which aims at presenting to the pupils, through the medium of speech, clear, vivid, interesting, ordered sequences of events, in such a way that their minds reconstruct these happenings and they live in imagination through the experiences recounted either as spectators or possibly as participators. This involves a very skilful use of language and other personal qualities on the part

of the teacher. The speech used must be appropriate not only to the situations and happenings depicted, but also to the mentalities of the listeners. In his development of his powers of narration the teacher can get considerable assistance from his observation of the work of other skilled narrators, e.g. other teachers in school and broadcasters in the School Broadcasting Service and the B.B.C. Children's Hour, from a scrutiny of the works of successful writers of children's books, such as Beatrix Potter or Enid Blyton, and from a study of works like W. A. Bone's *Children's Stories and How to Tell Them* and A. Burrell's *A Guide to Story-telling*. It is, however, from his actual practice and from the critical observation of his own performance that the teacher will obtain the greatest assistance in this direction.

Description is somewhat akin to narration. In the words of the dictionary, "to describe" is "to set forth, define, depict, or portray in words," and "description" is defined as "the act of representing a thing by words: account of the properties or appearance of something." The effective use of language is again involved, though possibly in the case of description this is somewhat harder at the outset than in the case of narration, since the story element with its action and sequence of events which figure so largely in the latter may not be prominent features in the former. The teacher will therefore find it advantageous to practise story-telling first, and then to go on to descriptive work involving familiar operations in which a definite sequence of items is obvious, e.g. how things are made, or how machines work, before attempting descriptions of more or less static features such as landscapes and materials with which the children are unfamiliar.

It is obvious that narration and description are but parts of the greater art of talking to children. This involves the effective use of speech in a particular setting in which the ideas have to be attuned to the mental levels of the hearers and clothed in language sufficiently vivid and interesting to hold their attention and touch off sources of creative mental activity which will enable them to "see" in their "mind's eyes" what is described or to reconstruct the events which are recounted. We have seen that children

make a great use of imagery in their mental activities (see p. 52). The successful teacher exploits this by painting word pictures as he describes or narrates, depicting scenes, events, and features which he himself "images" in his own mind. Red Riding Hood does not merely go to her grandmother's and discover a wolf there ready to eat her up. The successful storyteller scorns such matter-of-factness and builds up the narrative out of elements which are pictorially vivid and which appeal to the children's imaginative creativity through the wealth of imagery which the words provoke in the hearers' minds. They witness in vivid detail Red Riding Hood's preparations for departure, help in the packing of the basket, hear her mother's instructions, note the appearance and share the mood of the little girl as she steps out from home. They accompany her through the wood, pausing here to pick a flower, there to listen to a bird singing in the trees, and so on, as the narrator, with a skilled use of language and a dramatic delivery, conjures up one picture after another. The result is that the whole experience is a living one in which the hearers take an active share in events as they are unfolded.

With older pupils as well as with the younger ones, narratives and descriptions will be most effective when the ideas to be transmitted are suitably supported by accurate and vividly portrayed subsidiaries which invest the language used with a vital quality. For example, we can present our pupils with the facts that coal is dug out of the earth and that it is brought to the surface and subsequently distributed to our homes and factories. A really effective well-told account of an actual or imaginary visit to a coal-mine, during which the pupils are invited to accompany the visitor down the mine shaft, to pass through the galleries to the coal face, to "see" the miners at work, etc., will have a much more lasting effect upon them, their knowledge will be more specific, and the interest aroused will become more vital in quality than that which results from the bare statement of the facts which we have indicated.

The frequent use of homely illustrations, such as metaphors and similes relating to experiences with which children are familiar,

helps to vivify a narrative or description,¹ e.g. trees can "wake from their winter's sleep in the spring," we can live "at the bottom of an ocean of air," or "wade through seas of scarlet poppies," or contemplate "cloud-capped mountain peaks." Lest the reader should think that language of this nature belongs exclusively to the literary branches of study it is pointed out that the first two of these figures come from school science text-books and the last two from writings of famous men of science. The following gem of descriptive work is an example of how good writers upon scientific subjects can make effective use of figures of speech to make their meaning clear. It is taken from Tickner Edwardes' *The Lore of the Honey-Bee*:

"There is still another kind of work going busily forward round the gates of the bee-city. Certain among these stay-at-home bees seem to exercise a sort of common overzeal. They help those weighed down with too heavy a cargo to reach the city gates. If a lump of pollen is dropped in the general scuffle, these bees seize it and take it into the hive. Sometimes a bee comes eddying downward, smothered from head to foot with pollen, like a golden miller, and she is immediately pounced upon by these superintendents, and combed free of her incommensurable treasure. Others see to the grooming of the young bees, about to essay their first flight. The youngster sits up, protruding her tongue to its fullest extent, while half a dozen bees gather round her, licking and stroking her on every side. At last her toilette is done, and she is liberated, when, with a little flutter of her wings,

¹ If, however, an analogy is used the teacher must make sure that its analogous nature is realised by his pupils who may take the figure quite literally. A. F. Watts, in *The Language and Mental Development of Children* (p. 208), gives an interesting example of the failure of an analogy as a teaching aid arising from a misapprehension of this kind. A teacher had illustrated the difference between convection and conduction of heat by reference to two ways in which farm servants might put out a farmhouse fire if the only source of water was a nearby pond, viz. (a) by running individually to and from the pond with buckets as often as they could, and (b) by forming a line and passing buckets continually from hand to hand from the pond to the fire. In the subsequent test the question, "What do you understand by convection and conduction?" produced a "considerable number" of answers of the following nature: "Convection and conduction are different ways of putting out a farmhouse fire."

she lifts high into the blue air and sunshine and makes off with the rest to the clover fields, glittering afar off in the joyous midday light."

As pupils get older, and as their experience widens and their powers of abstract thought increase, the necessity for the employment of vivid colourful language becomes decreasingly urgent. We can in fact become much more matter of fact in our dealings with them, but even so the teacher is advised to use suitable verbal illustrations involving familiar experiences whenever these can help him to make his meaning clearer. Even in the description of a particular point of view an illustration of this kind can well be used to clarify matters. For example, Professor J. B. S. Haldane, in *Science and Everyday Life*, writes as follows :

" We happen to live in an orderly system, and that is why life has been able to evolve on the earth. But to say that it has been made orderly for our benefit is putting the cart before the horse, like saying that it is very lucky that so many towns are on navigable rivers and so few in deserts or on mountain tops."

The writer here describes for us most clearly his viewpoint by the use of a simple metaphor and a very apt simile, and the reader is left in no doubt as to exactly what he means.

The foregoing illustrations remind us of the fact that in descriptive work the author is at an advantage as compared with the teacher in that, whereas the latter has to produce his description on the spot the former can model his production at leisure, reshaping and refashioning it as a result of contemplation and reflection. It follows therefore that the teacher should take advantage of authors' descriptions and narratives wherever they are suitable for his purpose. A well-read passage which answers up to the requirements of a particular piece of teaching is often much more effective than anything the teacher himself can produce *ex tempore*. When, however, such work is not available the teacher will have need of his own efforts in this direction.

Explanation.—In Chapter VI, page 123, we noted that in developing skills the teacher will have recourse to the method of explaining.

certain things to his pupils during the conduct of the lesson. The object of these explanations is, as we have seen in each case, to enable the children "to take an intelligent interest in the proceedings, to grasp the purpose of what is being done, and to develop their understanding of how to do it." In the development of knowledge the teacher will have further occasion to use this form of instruction since, as we have already seen, his pupils cannot be expected to discover everything within the limits of the time available. Explanation, however, is not a method which should rely solely upon the teacher's efforts. He may have occasion to make a full and detailed explanation of some subsidiary and minor point during which he himself will play the major rôle. On the other hand, he may find it an advantage, especially in dealing with important topics, to make but a partial explanation himself and leave his pupils to make the major contribution. Whichever method he adopts, and however much or little he leaves to his pupils to discover, the significant point to note is that the exposition which he makes is directed towards developing the *pupils'* understanding, and that the success of it is to be judged by its contribution towards the development of their insight into whatever is being explained.

The object of all explanation is "to make plain, manifest, or intelligible; to clear of obscurity; to expound; to lay open the meaning of; to elucidate."¹ It follows, therefore, that the guide to the making of successful explanations is to be found in the practical applications of the psychology of learning described in Chapter III, Section C, page 55, i.e. by arranging that the significant relationships between the facts, situations, activities, etc., which are involved in any experience which we may present, are perceived and fully appreciated by the learners. There are many ways of doing this. We may merely point them out to the pupils, i.e. describe them, a method which is frequently pursued in the teaching of skills; we may say just sufficient to indicate the relevant facts in the pupils' experiences and encourage them, with or without our help, to educe the relationships for themselves, a

¹ From the dictionary.

method often employed in teaching such subjects as history and geography; we may merely indicate the kind of relationships which are to be looked for in the experiences we provide, i.e. our own part is to initiate discovery by the pupils, a rôle we often play with good effect in the teaching of science; or we may find it an advantage, particularly with less able pupils or with very difficult topics, to maintain a close direction of the learners' processes at every step. These are but a few of the many possibilities available for making things "plain, manifest, or intelligible," to pupils. Explanation forms a kind of bridge between telling and revealing knowledge to the learners, and it involves a number of other techniques as well as narration and description. Throughout the process the teacher must keep in close touch with the minds of his pupils, suggesting lines of thought, questioning them, answering their questions, setting them on practical work, examining the results obtained, discussing significant problems, etc. It is obvious therefore that oral explanation will often form but a part of the teaching involved though this part is nevertheless a most important one since, according to its effectiveness, so will the success of the rest of the teaching techniques be affected.¹

General Note.—In all oral work it is essential for the teacher to establish personal contact with every member of his class, and each pupil should feel that the teacher is talking to him or to her and that what is being said is of personal significance. It is therefore

¹ The insistence by the B.B.C. educational advisers that it is the teacher and *not* the broadcaster who *conducts* the actual broadcast lesson is a further illustration of the ancillary nature of aural presentations. In normal times pamphlets are published in connection with the courses which suggest preparatory work and follow-up activities which the teacher can conduct with a view to obtaining for his pupils the full values from the broadcast, which is but a subsidiary of the whole learning activity. In subjects such as music these pamphlets frequently make suggestions as to activities to be conducted during the broadcast, notes and diagrams which should appear upon the blackboard in front of the children, etc. In war time, difficulties of publication and distribution restricted this kind of assistance from the B.B.C. and the broadcasts perhaps were inclined to be more self-contained than they are in times of peace. Even so the literature sent out shows that the Central Council realises its limitations and relies upon the teacher to handle the immediate responses of the children as well as to conduct some follow-up work. (Further particulars can be obtained from the Central Council for School Broadcasting, c/o B.B.C., Portland Place, W.1.)

advisable to let one's glance wander round the whole class at frequent intervals, to talk rather than lecture, and to adopt a conversational tone rather than one which savours of public oratory. These, however, are important externals rather than essentials. Of the latter, the *sine qua non* is that the pupils must be kept ever in the teacher's mind throughout the time he is talking to them; their responses and interests should be noted, and the tempo and nature of the presentation adjusted accordingly. The language used should be carefully adapted to the level of the pupils without in any way making them feel inferior. Over simplification leads them to feel that they are being "talked down to," and their responses will be accordingly adversely affected. On the other hand, a teacher who is hopelessly "above the heads" of his audience will find it hard to obtain and hold their attention. There is, however, a happy mean between these two extremes, of plain straightforward yet colourful and vivid language, which the teacher should seek to cultivate and to employ.

Children will listen attentively to a teacher who has something interesting to say, who speaks clearly and distinctly, whose delivery is well varied and not monotonous, and whose command of language is such that his communications are stimulating and readily comprehended. Audibility is a most important speech factor. It does not vary in direct proportion with volume, and children will make the effort required to listen to distinct, quietly spoken narrations, descriptions and explanations, if these are apt and come from teachers whose personalities are dynamic and effective. Huskiness, very rapid or gabbled speech, lack of vigour, and marked provincialisms, are adverse qualities of speech which should be watched carefully by beginners.

Personal mannerisms of speech and behaviour, such as repeated "y' sees," "ers," "so-to-speaks" and chalk tossing, ruler wagging, hand "washing," or worst of all, prowling to and fro like a caged animal in front of the class, are further enemies to the success of oral teaching and should be attacked firmly by the teacher. "Mannerisms," says Professor T. H. Pear in *The Psychology of Effective Speaking*, "which usually symbolize private complexes,

interfere with the message because they are meaningless to the audience and prevent other gestures which might illustrate the meaning. Mannerisms consciously produced with the aim of putting the audience at ease by suggesting the speaker's informality may be double-edged weapons." Although Professor Pear refers here to the effects of mannerisms upon adult audiences the same characteristics are even more markedly shown by audiences of school age. The present writer remembers one of his teachers who used to interpolate his oral work with a curious "sniff-snort-humph." The class used to keep a "score" of these productions—it once reached the century—during each of his oral lessons, to the detriment of their interest in the subject he taught. One enterprising schoolfellow used to make a "book" upon the chances of a particular "chalk tosser's" failure to make a clean catch during any specified lesson period. As the teacher concerned was a good cricketer the odds were generous, the interest of the young sportsmen in the teacher's exposition was apparently high, but the profit-making motive overshadowed the whole proceedings and few of the class paid any attention to what was being said. The moral is obvious and needs no further emphasis here.

B. THE USE OF VISUAL AIDS

We have suggested in Chapter VII that the teacher's functions include "the creative treatment of actuality" to bring out "meaning and purpose which escape casual observers," and that indirect experience may be so lacking in co-enæsthetic factors that some reinforcement may be necessary in order to bring reality to it. Oral expositions, however well they may be delivered, frequently show this characteristic need, and the teacher will have occasion to supplement the use of words by suitable illustrative material of the visual kind such as pictures, maps, diagrams and films. The successful use of these aids is a technique of its own demanding the careful attention of the teacher.

Pictures.—Illustrations chosen for use in a lesson should be such as are likely to arouse just the kind of interests which the teacher intends, and to illustrate what he wishes to show. They should

be well drawn, free from errors and from features likely to create any misconceptions. A simple diagram is much better than a badly drawn, ugly, or misleading pictorial illustration. Some old-fashioned pictures are still to be found in our schools and their use may give rise to false impressions. For example, the writer recently saw a picture used in a geography lesson in which Sackville Street, Dublin, was depicted with mid-nineteenth century traffic, and peopled by Irishmen of the shillelagh-carrying type. This might have been of some use in a history lesson, but it certainly gave a very erroneous impression of Sackville Street and Irishmen as they really are to-day. As a rule therefore the teacher is advised to select his pictures with a critical eye to their qualities and suitability for his purpose. That they should be ancillary to this purpose rather than determine the course of the lesson goes without saying.

All pictures which are to be displayed during a lesson should be large enough to be seen by every pupil in the class. Small illustrations, unsuitable for class presentation, may well be exhibited upon the notice board before a lesson commences and left there for examination afterwards, but rarely is it advantageous to pass small illustrations around a large class during a lesson. They tend to become a source of distraction and to interrupt the flow of the lesson. If the teacher continues his exposition while their journey from hand to hand progresses, individual members of the class miss what is being said and, what is equally bad, they do not inspect the illustrations at the most effective times. These are obviously when the teacher wishes to focus the attention of the pupils upon them. They will then take their proper place and make their due contribution to the development of the lesson. The teacher who possesses an epidiascope is fortunate in that he has a much wider range of illustrative material from which to make his selection than one who has to rely upon wall pictures, while he can always arrange to make the exposures of his illustrations at the most appropriate and effective junctures.

In the writer's experience beginners in teaching tend to go to one of two extremes in their use of illustrations; they either omit to use them sufficiently and rely almost exclusively upon verbal

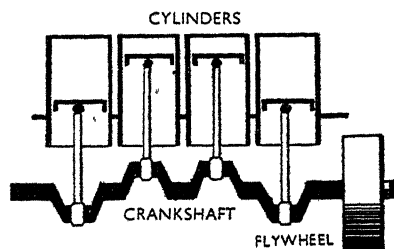
description, or they use them too liberally and over-illustrate their work. Failure to use adequate pictorial illustration tends to devitalise descriptive work which therefore fails to make an effective impression upon the pupils. The overuse of pictures tends to make the lesson disjointed, the exposition becomes discursive, and the pupils are likely to be somewhat confused. In the hands of an otherwise skilful teacher over-illustration may have another serious defect. Too little effort may be demanded from the pupils in the way of constructive imagination, the long range results of which are quite possibly that they subsequently become incapable of obtaining the full values from the spoken and printed word. Our aim in teaching is always to make experiences as real as possible for our pupils, but we must keep ever in mind the necessity of calling forth a reasonable amount of effort from them in the way of constructive or reconstructive mental activity, which they must be taught to make if they are to avoid developing an insatiable appetite for a cinematograph-like mental existence enchained to the perceptual plane. The teacher therefore should seek the mean between the two extremes which we have mentioned and temper his use of pictures with an appropriate appeal to the creative imaginations of his pupils.

Some teachers have the ability to make pictorial illustrations themselves, or to sketch upon the blackboard in order to illustrate their descriptions. They are indeed fortunate in this since they can always have at their disposal exactly the right kind of illustration to bring out the points to which they wish to draw their pupils' attention. A sketch, moreover, which develops in front of the pupils has untold value for them as part of a living experience.

Maps and Diagrams.—In teaching, one has frequently to make use of maps for illustrative purposes not only in geography but also in other subjects. Most teachers find that simple sketch maps, drawn in bold outline, are far more effective than the poorly delineated, overcrowded wall maps which used to be very popular in schools, and which even now, in some schools, have not fallen entirely into disuse. The sketch map is much clearer and can be made to serve the particular purpose of a unit of teaching much

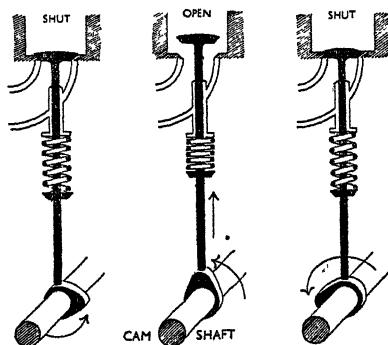
more effectively than the all-purpose production with its multitudinous markings and consequent indistinctness. Many teachers prepare these maps themselves upon sheets of paper, or upon the board, prior to the lesson period during which they are required.

The diagram is similar to the map in that it is a simplified representation of something which, in itself, either cannot be seen by the pupils or which, if it is examined, is not particularly revealing to them. The essential qualities of a good diagram are that it is simple and free from unessential items, that it actually shows the features to which the attention of the pupils is to be drawn, and that it can be readily seen and examined by all the pupils concerned. For example, examination of an internal combustion engine will not reveal much to pupils about the way in which it works since the essentials are necessarily encased, while the removal of the cylinder head will only show a very restricted view of pistons and cylinders. A suitably constructed sectional model will be much more instructive but, failing this, and such models are not easy to make or to come by, a diagram such as the following will help the teacher to illustrate his explanation most effectively.



The above diagram satisfies all the criteria of an effective teaching aid. It is simple, and free from all superfluous detail, and it is so drawn that the essential features of the working parts of the unit are very clearly delineated. By its aid the teacher can most effectively draw the attention of his pupils to the relative positions of the pistons in the four cylinders, to the shape and characteristics of the crankshaft, etc. The functions of the working parts can then be explained, the cycle of operations discussed, and so on. The chief

defect is that the figure is a static representation of a piece of machinery in which the pupils' main interest lies in the ways in which the several parts of it move. Where the subject lends itself to such a treatment this difficulty can often be overcome, in the absence of suitable films, by a series of diagrams such as the following



The above has all the essential qualities of a good teaching diagram, viz. simplicity, clarity, etc., but it goes further than the one given on page 168, and depicts a sequence of operations which is almost cinematographic in character. It is designed to help a science teacher to explain how the valves of the internal combustion engine are operated by the cams on the camshaft. Inspection of the diagram will reveal how simply and clearly this can be effected since the relationships among the significant components, viz. cam, valve and spring, are in this figure so well indicated. Incidentally, it is worth noting that as an aid to teaching it is superior to an actual motor engine, since in the latter these relationships could not be seen in their entirety as they are in the diagram.

The use of diagrams is not, of course, confined to the teaching of science. In almost every subject the teacher will be required to give explanations and descriptions which can be greatly facilitated by the use of diagrammatic visual aids, e.g. in the teaching of history, temporal relationships and political structures can frequently be best depicted in the form of a diagram, and in geography,

economic factors, weather conditions, etc., lend themselves to visual representation of the same character. Where suitable publications are not available many teachers themselves prepare diagrams on sheets of paper or draw them upon the blackboard. It is sometimes an advantage for the pupils to see the diagrams take shape before their eyes. For example, in mathematical work where graphical methods of representation are important parts of the study, the actual construction is often more significant than the completed figure, while in history or geography, where some development or progressive movement is being followed, it is of great value for the pupils to see this grow visually before them as the lesson progresses.

Films.—The extensive use of films during the war for instructing the general public and personnel in the services and in industry, has given further impetus to the movement which was fast gaining ground in pre-war years for the use of this medium for educational purposes. It seems likely therefore that the stage is now set for a big extension of possibilities in this direction, and we can expect to find an increasing number of schools equipped for using films for teaching purposes. It must be remembered, moreover, that modern children are very readily taught by this means since the bulk of them are what is sometimes termed “picturate,”¹ i.e. they are attuned to this method of obtaining experience, which is not far removed from the “first-hand” variety.

Films suitable for educational purposes are of two kinds :

¹ Skilled observers have noted that many children in cinemas appear to interpret films, *in which they are interested*, with remarkable ease. They seem to tumble to the director's intentions very often more quickly than their more mature elders whom they will sometimes enlighten as to what “is going to happen.” They very readily grasp the significance of the interplay of scenes in the montage, of character indications which adults frequently overlook, and of details which the mature mind only half notices. It has been suggested that differences between the adults' and the children's interests account for these discrepancies, and that children attend cinemas more frequently than adults. Neither of these, even if true, would appear to the writer to account entirely for the phenomena concerned. A very rough and ready experiment in which members of a class of thirteen-year-olds beat the writer himself and two adult students in their knowledge of detail after the first showing of an educational film, inclines him to think that some further explanation is required.

(a) *background* films which can be used for widening children's experiences generally, e.g. Mr. Ponting's classic, "With Scott to the South Pole," the "Background to Literature" series (G.B. Instructional Ltd.), and the Documentaries; and (b) *foreground* films which aim at direct instruction under classroom conditions in such subjects as geography, hygiene, biology, nature study, and in commercial, industrial and technical topics. The technique for the effective use of films will naturally be affected by the type of film to be shown as well as by the purpose which it is intended to serve. The part, for example, which the teacher plays in dealing with a sound film will naturally differ from that required when a silent film is being shown, while certain films will dominate the teaching and others will be merely supplementary teaching aids illustrative of particular parts of the teacher's own course of instruction. The suggestions which follow must therefore be viewed in the most general way and generously adapted to meet particular circumstances.

The general pattern of the technique for teaching by films falls into three main steps: (I) Preparation, (II) Presentation, and (III) Follow-up.¹ Let us examine these separately.

(I) *Preparation*.—The forms which this step may take are determined by the character of the experiences which are involved in the viewing of the film. A whole series of preparatory lessons, or a complete single lesson, may be required to provide the children with an adequate background so that they can get the full benefit from the film. On the other hand, a few minutes' talk may be quite sufficient to prepare the pupils for the forthcoming step. Before this is commenced, however, it is advisable, as a general rule, that the pupils should be quite certain upon the following points:—

- (a) What the film deals with and the general purpose of the viewing, and
- (b) What special points they should look for (*not* what they are about to see).

¹ Cf. Broadcasting, footnote on p. 163.

(II) *Presentation*.—Wherever the length of film and the nature of the subject-matter permit, it is advisable to conduct the step in three stages :

(a) To begin with, the film should be shown in its entirety without interruption.

(b) While the film is being rewound, preparatory to its being shown again, the teacher can with advantage conduct a preliminary follow-up. Questions can be asked by the pupils upon points which may not be clear to them, the general ideas and lessons to be learned from the film can be brought out by the teacher's questions to the class, any misconceptions which may have arisen can be removed, weak observational work on the part of the pupils can be indicated, and the relation of the new knowledge which the pupils have gained to other experiences which they have had can be brought out. The general purpose of this stage is to make a preliminary survey and a tentative organisation of the knowledge gained and so to prepare the pupils for the second exhibition of the film.

(c) In this, the final exhibition of the film, the pupils should be able to concentrate upon any weaknesses revealed in stage (b). If the films and projector are of a suitable type it may be possible for the teacher to arrest the showing, or re-show portions which need special attention or which are especially difficult for the pupils to comprehend.

(III) *Follow-up*.—In this step a variety of activities may be employed according to the particular circumstances obtaining, e.g. a generalisation may be attempted or a summary of the film made and recorded in the pupils' notebooks, a discussion can be conducted upon the lessons learned from the film, further reading and study based upon the film can be planned, experimental or practical work may possibly be undertaken, or a critical analysis made of the contents of the film. Whatever is attempted, however, should be so directed that the experience which the pupils have had is given its fullest significance and appreciated in the light of knowledge which they already possess. Too frequently experiences of this kind are left isolated in the pupils' minds without

their being correlated with other experiences upon which they may have an important bearing. The aim of the follow-up step is to cover what is appropriate in any particular experience to the Generalisation and Application Steps of the general method (see pp. 154, 155).

The foregoing general method will obviously be applicable only when a film is made the central feature of an experience which a teacher is conducting for his pupils. There is, however, an increasing range of material which can be used by a teacher to illustrate parts of his own teaching in much the same way as he would use an ordinary illustration of the "still" variety. Such foreground teaching films as the cycle of operations in the internal combustion engine, and "loop" films showing definite sequences such as the action of valves in pumps, or extracts from historical films showing definite features illustrative of the teacher's narrative, may take but a few minutes to show, and their purpose will be definitely subsidiary to the whole wider purpose which the teacher has in mind. The steps, therefore, which are indicated above will not necessarily be present, and the method which the teacher uses in exhibiting the films will be strictly conditioned by his plan for the major activity and the part which he intends to make the "moving picture" play in it.

C. DEVELOPING KNOWLEDGE THROUGH STUDY

The term "study" is here used in its widest sense, viz. the application of the pupils' minds to the discovery or receipt of knowledge either from their practical, experimental and other investigations, or from the reading of books, magazines, etc., for the information which these contain. Study implies an effort on the part of the pupil "to understand facts and increase his knowledge," and it is obvious that in all teaching designed to develop a pupil's knowledge this will be an ever-present requirement. Some activities, however, demand greater mental effort on the part of the pupils than others, according to the nature of the experiences involved, and the purposes which they are designed to serve. While therefore keeping in mind the universal requirement to

which we have already referred for mental effort on the part of the pupil in all learning, we turn in this section to a consideration of some of the kinds of study which make the greatest demands upon learners.

Problem Solving.—There is a theory, known as the Recapitulation Theory, the exponents of which claim that children, in their individual development, reproduce in an abridged or telescoped form the evolution of the human race. The protagonists of this school of thought claim to be able to detect a parallelism between the stages of development through which a child passes from birth to maturity, and those which have characterised the evolutionary development of the human race, e.g. a child's development from birth up to about the eighth year is supposed to parallel the advance of man from the level of the arboreal ape to the stone age, while from the eighth year onwards the child recapitulates in his development the passage of man through the hunting, pastoral, agricultural and commercial phases. Some anthropologists even assert that we may gain enlightenment about the processes of evolution by an examination and study of children's spontaneous and untutored behaviour at particular ages. It is surprising how satisfying a theory this can be when we seek the explanation of a great deal of children's behaviour, and it is at times quite comforting to our professional pride to reflect that a particular group of noisy young human beings who may not have proved very "teachable" are after all "only half-civilised little savages." Unfortunately there is a group of eminent present-day authorities who are extremely sceptical of the theory, and even others who are not altogether unsympathetic towards it advise the utmost caution and reserve in accepting any educational principles based upon it. While therefore bearing these limitations in mind, and without being unduly speculative, it is possible to draw attention to one rather striking developmental parallel of significance here, viz. the close resemblance between the ways in which man has developed his knowledge of his environment and the ways in which children acquire a great deal of their insight into their surroundings.

Man's knowledge of the world around him has been developed

as a result of his material and intellectual needs (cf. p. 87). At the most primitive levels the hard struggle to exist, to feed, clothe, and shelter himself, presented practical problems which had to be tackled and solved if man was to survive. In the solution of these problems he discovered a great deal about his environment and about himself, about the materials with which he had to deal, about the effects of such influences as the periodicity of the seasons upon his life, and so on. With the development of his practical control of his world came a parallel development in his desire for intellectual control and, at the prompting of his curiosity, he sought answers to the puzzles and challenges which natural phenomena presented to his growing intellectual powers. The answers to the questions which he accordingly asked himself, and which he still keeps on asking, form the substance of the bulk of human knowledge, not only of the material world, but also of all aspects of human life, since curiosity knows no hard and fast limitations. The method by which those answers were found, and are still being found, is by the solution of problems.

Observation of children shows that they too pass through phases in their intellectual development which are in many respects remarkably like those which we have described in the preceding paragraph. They also have practical problems to solve, e.g. how to climb, how to dress themselves, and how to make things, which lead them to make most important discoveries regarding themselves and their environment. That they are curious and puzzled about what they find around them is evidenced by the hosts of questions upon all kinds of things which they continually ask, e.g. "Why is coal black and paper white?" "Why does the moon walk with us while the houses stand still?" "How does an aeroplane fly without ever flapping its wings like a bird?" "Where does the sun sleep at night?" "What is the fire made of?" These are but a few samples of the multitudinous problems and puzzling situations which are a normal feature of a child's everyday life. It does appear therefore that there is a psychological as well as a historical sanction for the problem approach in teaching, since it is from such situations as we have mentioned, viz. the

practical and the puzzling, that children derive their main stimulation to learning, while the very material itself with which we wish to familiarise them has for the greater part been developed by this method of problem solving. When, moreover, we teach children by this method we are not only developing their store of knowledge but we are also teaching them to study, i.e. to think, to be able to discover things for themselves, and to become intellectually self-reliant. In a very real sense therefore we can by such teaching methods prepare them for the assumption of their future responsibilities while at the same time catering for their present needs.

There is a very wide range of possibilities available for the teacher's use in work of this kind, some of which may be disposed of very quickly, e.g. how to use a particular drawing instrument, or "make good" missing ingredients in a cookery exercise, while others may occupy a whole lesson or a course of lessons, e.g. the problem on area mentioned on page 148, or a study of how plants feed, in which a complete series of experimental observations is involved. Practical problems involving constructional work, e.g. the making of a model electric motor, are also very fruitful sources of experiences leading to investigations and the study of important principles. Whatever their character, however, the treatment of the problem situations should be planned to accord with the way in which valid discoveries are made. As a general rule we find that this proceeds by four main steps.

- (i) The formulation and appreciation of the problem.
- (ii) The collection of all relevant data by observation and by experimental work.
- (iii) The formulation of a conclusion as a result of a consideration of the evidence which has been collected.
- (iv) The testing out of that conclusion.

The first step is necessarily of a preparatory nature. When, however, a problem is about to be solved the form which the step may take is of a special character. It involves not only the stimulation of interest but also a clarification of ideas regarding

what has to be found out in the light of ideas and knowledge which the children already possess. We have already noted on page 175 some characteristic problems which face children, problems moreover which they show no hesitation in formulating usually very hastily and often inaccurately, cf. the idea of the moon "walking" with the observer, or of the sun "sleeping" at night. The first step in teaching is to clear up any confusion of ideas which may exist as to the nature of the problem, and to get the children to appreciate the significance of the work which is about to be undertaken. For example, in the area problem on page 148 the teacher might with advantage let the children view the site, examine the gardening book, check their ideas as to "ounces," etc., and find out whether the area unit quoted is appreciated or not by any members of the class. In solving problems of a more theoretical nature, e.g. in arithmetic, where problems are to be worked as exercises upon rules, it is often an advantage to call upon individual members of a class to give an appreciation of one or two of the problems by indicating what is "given" in each of them, and what has to be "found out." In more advanced work this analysis of problems into which is known and what has to be determined is a most important part of the training in thinking which is involved, and the teacher can well devote time to it in the full knowledge of its value to the young people with whom he is dealing.

The second step in the solution of a problem involves a co-operative approach in which the pupils have full opportunities to play their parts. They can be invited to make suggestions as to how the solution can be found experimentally, what kind of observational work can be undertaken, what records can be made or consulted, etc. That these suggestions may involve "guessing" is obvious, and it is by no means sound to reject guesses which are not too wild or thoughtlessly expressed. Discovery should be an adventurous business, and a speculative approach is by no means out of place since it is in fact the method by which many discoveries have been initiated in science and in other branches of human knowledge. The error lies, not in making a guess or a

speculative hypothesis to attempt to solve a particular problem, but in leaving that hypothesis untested. The trained thinker does not hesitate to "jump to conclusions," but he is very critical about any such conclusions before he has examined all the data obtainable and submitted his hypothesis to a hard and rigorous testing in a wide range of situations in order to see whether it is "error-proof," i.e. until steps (iii) and (iv) have been completed. The opinions and suggestions of the pupils should therefore be treated with respect and, wherever they are reasonable, given practical expression in the activities conducted, e.g. some pupil may suggest measuring the plot to be grassed in the area problem by means of a "square yard" cut out of paper or linen, or possibly made in the form of a wooden frame. The practical difficulties encountered in carrying out his quite reasonable suggestion will give added point to the subsequent work, and the time taken up in testing out his idea will be well spent, since some pupils are almost certain to "tumble" to a much better way of doing it, as they watch and note the defects of the method proposed.

In a great deal of experimental work in science the teacher himself will have occasion, rather more definitely than in some other forms of teaching, to indicate the lines upon which the collection of data is to be made. This results from the nature of the subject itself, and from such other factors as time, and the limitations of apparatus and other equipment. He nevertheless should secure, if he is to get the full training values from the observational work, that in this step the pupils fully appreciate the significance of what they are doing, its purpose and nature, and how it connects up with step (i). Often one finds pupils at work, with immediate interest in externals such as intractable burners and popping corks, while remaining very hazy as to the essentials, i.e. the ultimate purpose of their work, what they are trying to discover, why they are using the selected method of discovery, etc. While it must be recognised that the solution of their incidental problems is in a sense educative, it is important to note that the main discovery sought should throughout exercise the dominant influence upon their thought processes. When there-

fore individual or group work is being undertaken the teacher's place is among the pupils, questioning them upon what they are doing, why they are doing it, what they are to look for, how they are to record their observations, etc.

The third step, viz. the drawing of conclusions, is probably the most difficult for the teacher to conduct effectively. Whatever method he adopts, e.g. he may discuss the problem collectively with the class or individually with each pupil, his aim should be to secure that, *as far as possible*, the essential thinking is done by the pupils themselves, and that their eductive processes (see Ch. III, p. 58) produce the particular solution, formulation, or generalisation at stake. Whatever help therefore he may give will be influenced by this essential requirement, and his difficulties are enhanced, particularly in collective work, by the fact that his pupils are likely to "see the light" at different times: Some will receive their "illumination"¹ very quickly, others may require to re-examine the data a number of times before "seeing" the truth involved, while some few may, in the last resort, have to be told what it is. This may be somewhat discouraging, but it is inevitable under modern teaching conditions, and the teacher need not consider that his efforts have been entirely wasted provided that the explanation involved is properly comprehended and appreciated. The illumination is then not a first-hand one but, even though it is second hand, it can have considerable influence upon the subsequent mental life of the pupils concerned.

The fourth step, i.e. the testing out of conclusions reached, is one which must be conducted with tact, as children do not always

¹ This is the term used by Graham Wallas in *The Art of Thought*. In this work the author formulates a method for "discovery" which is based upon his study of the ways in which great thinkers like Helmholtz and Poincaré have made their major contributions. He suggests that great minds do not necessarily experience their Illuminations while they are consciously being exercised upon the problems. A period of incubation, during which the minds concerned "sleep over" the problem, as it were, intervenes before the Illumination itself, which may come quite unbidden to the thinker's conscious mind. We cannot, of course, wait for this kind of revelation when teaching children, but Wallas's work does suggest that it may be advantageous for us to leave problems unsolved at times, and to allow a lapse of time before re-discussing them with our pupils.

take kindly to it. They must be taught to be critical, to examine the "truths" which they "discover" to see whether they fit all the known data. Often this can be effected by conducting an application, e.g. in the case of the area problem we discussed previously, the extension through a number of particular cases to the general case (see p. 149) will in itself be a form of verification. In other cases, a discreet question regarding some significant relationship which has been overlooked, some suggested check or a broad hint may be the best way of encouraging our pupils to be cautious in making their generalisations. Care, however, must be exercised as we wish our children to gain in confidence in their own intellectual powers, and we should therefore avoid making them over-cautious. For example, we would do well to lead our pupils to make such a generalisation as "an element is something which *so far* has not been split up into any other substances," but we should not encourage them to include a safeguarding clause in every statement which purports to be an expression of a truth. They can always be encouraged to look out for and discuss any facts or statements which appear to run counter to, or throw doubts upon, the validity of any particular conclusions which they may have reached. This will normally be quite sufficient. To carry caution further is likely to undermine their confidence in themselves, in thought as an instrument in the development of knowledge, and eventually in the worth of study.

Private Study.—As soon as children have reached a reasonable standard in reading skills, they can be set to read books and other publications for information. Some form of private study of this nature is therefore usually included in the work of children in the upper classes of primary schools, but it is in the post-primary range that the use of this medium for study is most popular. One finds, however, very considerable differences between the techniques adopted by teachers in different schools when they are conducting private study activities. The once very popular instruction to the pupils to "read *and learn*" certain sections of particular text-books still persists in some classrooms, while in others much less vague and indefinite instructions are given. The

inevitable result of the former method is that, unless the book concerned is a very exceptional one, the pupils read with too wide a purpose in mind. They attempt to remember everything in the section studied, and finish up by trying to memorise detailed pieces of information without due regard for the ideas and relationships of more importance. Other teachers, however, find it an advantage to direct the pupils' reading more closely and to make its purpose more specific. Children, in the majority of cases, need training in reading for information, and such teachers endeavour to provide this training by the methods they employ.

One simple method of directing pupils' reading is to give a series of questions before setting them to their work. For example, the teacher may give an instruction something like the following : " In this period you will read Chapter " n " of your history text-book. This is about Clive. Be prepared to answer the following questions : Who was Clive ? For what is he famous ? What kind of a man was he ? etc." The questions may possibly be given orally, or written upon the board. The subsequent reading which is done by the pupils is accordingly given a definite purpose, and their ideas are associated around certain centres of interest which arise from the inquiries which they are conducting during the course of that reading. They have advanced information as to the type of test to which they will be subjected, or the lines which will be followed in the subsequent discussion to which they will be expected to contribute.

Private study, however, need not necessarily be confined to the mere collection of certain information which a particular book contains. A simple research may be initiated which will involve the consultation not only of the text-book, but also of reference books, encyclopædias, and similar publications. For example, suppose the pupils are studying a book like F. H. Spencer's *Industry and Society*. A typical research which might be done say on Chapter VIII, which deals with the Central Government, can well be initiated by some such directions as the following : " Make a list of all the government departments mentioned in this chapter. Against each department write the name of the minister responsible

at the present time (use *Whitaker's Almanack*). In a third column write against each one of the departments whether it is (a) a spending department, or (b) one mainly concerned with collecting revenue." The research involved here is a very simple one, the source of the information required is indicated by the teacher, and the form in which the written record is to be made is laid down for the pupils' guidance. As the pupils' experience develops and as they become increasingly familiar with this kind of study the teacher can well withdraw some of the help which he gives in the earlier stages, e.g. the form of any written record required can be left to the pupils' judgment, or the actual book or books to be used for reference need not be named, and the pupils can be required to find out, not only the necessary data, but also where to find it. For example, in a post-primary science course an exercise of the following character will involve the consultation of a number of authorities, books of reference, industrial journals, etc. : "Find out the various ways in which milk is used as a food. What are the food values of milk? How do they compare with those of (a) beef, (b) potatoes, and (c) rice?"¹ The pupils attempting this research will necessarily have had a scientific training and experience which will possibly, but not necessarily, suggest where the information is to be obtained. It will be seen also that not merely must information be obtained, but it is also to be interpreted, i.e. handled in such a way that it is used for a specific purpose. Study of this kind, in other subjects as well as in science,

¹ This instruction may be given orally, written on the board, or handed to the pupils on "guide sheets." These last are comparable to the "assignments" used in the Dalton Plan (see Ch. X). Ordinarily the "guide sheet" contains definite information upon points such as the following: the general nature of the topic to be studied, the sections to be read in particular text-books; a series of problems to be attempted, reference books of assistance, and follow-up work. It is in fact the complete "self-help." We are suggesting here, however, that for senior pupils with experience the guide sheet, such as has been described above, can be much curtailed, and that in the final stages it is more like real life for the pupils to have to seek the sources as well as the information itself. "Guide sheets" or "assignments" are, however, of considerable use in the intermediate stage, i.e. between that indicated on page 181 and the one on this page. Where a duplicator is available the teacher can design and manifold them to suit his particular requirements in any teaching involving private study or problem solving.

will provide a very useful training for older pupils in the use of books for helping them to solve real life problems.

For effective research and study of the kind indicated here, the pupils will necessarily require some training in the use of reference books, etc. Through exercises of different types, such as those which have been indicated above, the preparations for compositions and lecturettes, or the collection of data for mathematical and science work, the teacher can familiarise them with the kinds of information to be found in the different varieties of books, e.g. almanacs, encyclopædias, and trade journals, the ways to use the class, subject-room, school, and public libraries, together with the uses of the alphabetical index, of footnote references, and the like. In this work the teacher is advised to take nothing for granted, e.g. it is surprising how many children can be found in school who do not appreciate the full significance of the alphabetical arrangement of words in a dictionary.¹ It is important therefore to devote some time to teaching the actual technique of reference very early on when private study is commenced. The aim is to enable the pupils to know where to find information of a particular kind and to be able to assemble, organise, and use it expeditiously and effectively.

Discussion.—In the popular mind there is a tendency to consider “discussion” as being synonymous with “debate.” When thinking about education, however, it is advisable to draw a clear distinction between these two terms. A debate is a contest in which opposing sides join issue in a battle of words, each side doing its best to do the other side down by fair means or foul.² Without perhaps going the whole way with Professor Pear who states : “Debate is a ‘low’ or simple form of verbal skill depending

¹ A teacher of a class of eleven-year-old girls and boys recently informed the writer that she did not encourage the pupils to use the dictionary as they were so slow about it, and she found it “better” to give them meanings and spellings herself. Inquiry established the fact that, much to the teacher’s surprise, the majority of these pupils did not know the alphabet. These particular pupils had been taught to read by one of the modern methods which do not require the alphabet, as such, to be learnt at all.

² See Dr. R. H. Thouless : *Straight and Crooked Thinking* (Hodder & Stoughton), for an appendix containing thirty-four “dishonest” tricks for use in debate.

for its success 'upon the unconscious co-operation of stupid opponents,'¹ and while admitting that there is a possible place for debates in the development of verbal skills in school, we must emphasise that, in the sense in which the term is used in this book, discussion is certainly not equivalent to debate. Etymologically, "to discuss" is to "shake asunder,"² and the most significant implications of the dictionary meanings are that "discussion" aims at "sifting, sorting out evidence, agitating a point or subject with a view to elicit truth." This then gives us our main purpose for conducting any discussion, viz. the discovery of truth, as well as our method, viz. the shaking asunder, unravelling, sorting and sifting of evidence. It is obvious therefore why this method is particularly appropriate to the third stage of discovery (see p. 176).

In conducting discussions which arise in the ordinary course of teaching, the teacher should aim at securing the utmost possible active pupil co-operation so that the pupils are encouraged to take a very full share in the discussion. Wrong conclusions may be suggested, and it is then up to the teacher to indicate by questions to the class or possibly by obtaining another opinion from other members, discrepancies or illogicalities in the statements made. His aim is to train his pupils in methods of logical thinking without necessarily attempting to conduct a course in formal logic. This training can be most effectively carried out by the pupils themselves participating in discussions in which the teacher tactfully points out such things as confusion between facts and opinions, fallacies in arguments actually put forward, generalisations made on insufficient evidence, etc. That this should be done in untechnical terms and in relation to particular cases goes without saying. If the activity is conducted in the right atmosphere, and if the teacher's manner is sufficiently encouraging, very valuable educational results follow. It is, moreover, a kind of activity which, in the experience of the writer, children and older pupils thoroughly enjoy, provided of course that the material selected is stimulating and otherwise suitable.

¹ T. H. Pear : *The Psychology of Effective Speaking* (Kegan Paul).

² From Latin *dis*, "asunder" and *quatio*, "I shake."

When dealing with older pupils in the post-primary stage, the method of conducting courses of study by discussion groups which has been popularised by the Services educational departments and adult educational institutions is worth consideration.¹ The writer has himself found it very useful when dealing with groups of "grammar" school pupils over sixteen years of age, and with adult students of all ages. The technique for conducting the study of younger pupils through this method has not yet been developed to any great extent but there may be possibilities in the future. In view of the relatively limited experience and immaturity of the pre-sixteen-year-olds it is obvious that one could not very well deal with studies such as politics, sociology, philosophy and economics, in the form which lends itself so readily to this treatment in cases of the older students. The production of more suitable literature for schools, and the co-operation of the B.B.C. and of film producers may, however, produce a store of suitable experiences which will enable these pupils to profit by the application of the discussion group technique in its original or possibly in some modified form.

D. QUESTIONING

Children's Questions.—As we have already seen, questions are used by children to express their own problems. Children should therefore be encouraged to use this natural form of expression, at suitable times, during the course of a lesson. From the questions which they ask, the teacher can obtain very useful information upon a number of important points, e.g. the attitude of the pupils to the work, the grasp which they have of any explanations given, the possible existence of misconceptions, the general effectiveness of the teaching methods, and so on. Information of this nature will be of assistance to the teacher in enabling him to maintain contact with his pupils during the lesson and to make any desirable modifications in his teaching methods which the course of events

¹ A most helpful little pamphlet upon *Discussion Groups and Their Leadership* is published by the Workers' Educational Association, 38a St. George's Drive, S.W.1.

necessitates. The questions which the pupils ask are, moreover, entitled to respect and should be dealt with accordingly.¹

The Teacher's Questions.—In the preceding pages many occasions have been indicated for which the use of questions by the teacher has been recommended. They cover a wide range of teaching situations, and suggest that questioning may take a variety of forms and fulfil purposes of a variable nature. Broadly speaking, however, questions can either be used for provoking thought of an exploratory nature on the part of the pupils, or for the purpose of recalling to their minds some definite knowledge which is required for use in some particular situation. The teacher may, for example, ask questions to test the effects of previous teaching, to make a sectional or complete recapitulation of a lesson, or to secure a suitable starting-point for new work by calling to his pupils' minds some old knowledge with which they are familiar. On the other hand, he may use questions during his teaching in order to help pupils to educe judgments during a lesson, to follow a line of argument, to arouse interest, or to start them off on a line of inquiry or exploration.

The questions which are best suited for testing knowledge which has been acquired are not always oral questions involving oral answers from the pupils. The teacher is likely at times to be misled if he adheres exclusively to this method since, as soon as one pupil gives the correct answer, the rest take the cue and "down hands" immediately, irrespective of what their own particular answers would have been. The teacher is therefore advised to consider the possibility, on suitable occasions, of setting tests which are to be answered in a written examinable form. Even where questions are given orally, e.g. in mental arithmetic, it is frequently an advantage for the pupils to write down their answers upon paper. The teacher will then have available evidence of the individual performances of each member of his class, and he is accordingly in a better position to make an adequate survey of the results than if he relies upon the oral responses alone. In recent

¹ It follows, therefore, that any frivolous, impertinent, or thoughtless questions should meet with the appropriate treatments which these deserve.

years our traditional form of conducting school examinations and tests has been submitted to considerable criticism. The essay type of answer in non-mathematical tests, which was at one time practically universal, has been especially criticised on a number of counts, and it is now very common to find tests conducted on the modern lines in which the technique of the mental tester is adapted to classroom conditions, the completion test form and the short answer type of examination question being particularly popular. The teacher is therefore advised to make a study of these techniques which he can find illustrated in many school text-books, etc., with a view to devising tests of the progress made by pupils in any particular teaching.¹

The older types of books upon school method used to make a very big feature of the art of oral questioning, and in teacher-training the development of the technique involved was formerly given great prominence. Modern methods, however, which place less emphasis upon oral teaching, have tended towards a neglect of this very important technique. Though oral questions are far less frequently used nowadays than they were formerly, it is still as important as ever that they should be effective when they are employed in teaching. The development of the technique involves careful attention to the form of the questions employed, e.g. to their phrasing and expression, as well as to the best ways of using them most effectively. Beginners sometimes question for the sake of questioning, and it is important at the outset to realise that the teacher should have some very definite purpose in view whenever he asks a question. This purpose will determine to a great extent the content and form of the question, e.g. in posing a question which is to initiate a "quest" involving a whole series of activities, the blunt pertinent form applicable to such test questions as "How many ounces are there in a pound?" will be obviously unsuitable. As a general rule, questions should be economically worded, since long-winded discursive or involved questions tend to confuse children rather than to focus their

¹ P. B. Ballard: *The New Examiner* (Hodder & Stoughton) contains many useful suggestions.

attention upon readily appreciated ideas and relationships. They should be so worded that they are free from ambiguity, pertinent, challenging and stimulating.¹ A well-conducted interrogation, in which the questions come easily and naturally in a sequence developing out of answers given by the pupils, can enliven a class in a most invigorating way, stimulating the members' interests and providing an inspiration to mental activity. On the other hand, a laboured, uninspired piece of pedestrian probing, or painful "eliciting" of knowledge, can have the opposite effect, in which the experience is redolent of a visit to the dentist at which the patient has to supply his own anæsthetic.

In oral teaching it is advisable as a general rule to be very sparing in the use of questions which merely require the answer "Yes" or "No." They very rarely help the development of the lesson to any great extent, and the answers which are usually obtained to such queries rarely show the pupils' true mental states. The elliptical question is another type which should be very sparingly, if at all, used in oral teaching. This kind of question gives the impression that the teacher has started to make a statement, changed his mind in the middle of it, and decided to make it a question by leaving his pupils to supply the missing word thus: "The ratio of the weight lifted to the force used is called the —?" or "William the Conqueror landed in England in —?" The obvious invitation to the pupils is for them to give a collective answer to such questions. Where this becomes habitual the obvious disadvantages of collective responses are shown in an aggravated form. The elliptical question, with all its defects, is, however, to be preferred to the following atrocity which is of

¹ The following is an actual recapitulatory question containing a number of faults: "When we heated the water, to boil it in the beaker, on the gauze over the bunsen burner, what were the bubbles we saw coming off?" The chief defects are: (i) ambiguity—the answers included "steam," "air," and "gases," indicating that the pupils were uncertain as to the phase of the experiment to which the question referred, (ii) lack of challenge—it "tells" too much, (iii) wordiness—it includes irrelevant items, and (iv) poor expression—it is cumbrous and unwieldy. A way of making this interrogation more effective would have been to have made two separate questions of it, thus: "What did we notice when the beaker was *first* heated?" and then, "Of what did the bubbles consist?"

a type frequently encountered : "The ratio of the weight lifted to the force used is called the *what* ?"

Beginners frequently develop the bad habit of repeating their questions immediately they have expressed them or of paraphrasing them in the hope of making them clearer. They are advised to avoid this tendency as it leads to lazy listening on the part of the pupils. If questions are carefully thought out, if they deal with suitable matter, and if they are properly framed and expressed in clear, distinct speech, it should rarely be necessary to repeat or paraphrase them. If no response is obtained in such circumstances, the teacher can quite well frame other supplementary questions relative to them, if he is sure that the pupils possess the requisite knowledge. If they do not, then they may very well be told the answer since much time may be wasted and interest killed by laborious questioning in an endeavour to obtain from children knowledge which they do not possess.

All oral questioning should be conducted in a way which accords with the general principles governing classroom procedure, i.e. it should be conducted in a natural co-operative atmosphere. This is helped by distributing the questions around the pupils equitably and thus avoiding the tendency of a few of the brighter ones to monopolise the proceedings, and by conducting the interchange between teacher and pupils in an easy conversational manner. One of the greatest hindrances to the maintenance of natural relationships in a classroom is the habit which many teachers develop of repeating every answer the pupils give. Why this habit should be so widespread among members of the profession, the writer has never been able to understand, except that it is one of the easiest in the world to develop, as he himself has learnt from experience.¹ It encourages poor delivery on the part of the respondents, and lazy listening on the part of the rest of the pupils ; it is unnatural and, moreover, something which the habitués would never think of doing outside their classrooms, e.g. in the

¹After many years of campaigning against this practice among teacher-students the writer was shocked recently to find himself repeating the children's answers in the course of a "discussion" lesson in the presence of a group of these teacher-students.

common room, or in their homes and clubs. Repetition of an answer can, however, be used to great effect for the purpose of emphasising a point of special importance, while it is quite permissible when an answer has been given clearly and distinctly by a pupil, but some external noise has prevented it from being heard.

CONCLUSION

In this chapter we have considered some of the techniques which are available for the teacher's use in the development of knowledge, together with some of the more common teaching aids to be found in most modern schools. The account is necessarily incomplete, and the reader will note obvious omissions. An endeavour has been made, however, to deal with representative sections of the very wide field involved, and to bring out the main principles through the consideration of these sections. The teacher himself will be able to apply these principles to the use of other aids which have not been dealt with here. In this connection, the writer is often asked when lecturing whether he approves of the use in teaching of such aids as the quiz, crossword puzzles, documentary plays, puppet shows and the like. His answer is always a vigorous affirmative, with the proviso that the particular aids concerned must be used in accordance with the principles of teaching, which are themselves dependent upon the natures and requirements of the particular pupils with whom one is dealing. Modern teaching sets no limits to the kinds of experiences which may be employed, and imposes no restrictions upon the ways in which these are to be conducted, other than those which arise out of these fundamental requirements which are so many times expressed, in a wide variety of contexts, in these pages.

CHAPTER IX

THE DEVELOPMENT OF TASTE

AN inspection of some of the very old school Log Books sometimes to be found amongst educational records, will reveal many interesting features of the educational practices which obtained at the end of the last century. For example, the reader may find, entered according to Regulations "in the Inspector's own handwriting," a list of poems to be learnt by the pupils for recitation to the Inspector himself when he made his next annual examination. The selection of poetry was thus made by an authority external to the school, and apparently the teacher had merely to "teach" the poems so detailed. Practically without exception schools developed a technique for getting their pupils to memorise and to recite the prescribed verses. This consisted as a rule in the acquisition by the pupils of a number of verbal habits as a result of their repetitive "hammering" by the teacher. The recitation was enlivened by the pupils "putting plenty of expression into it," when so ordered by authority.

Subsequent developments showed a more enlightened approach. The prescription of the poems by the external authority gave place to selection by the teacher. The spread of the idea of making interest a motive for learning led the more progressive teachers of the early decades of this century to try to get their pupils to take an intelligent interest in the content of the poem and to learn something from it. This reduced the hammering and made it easier for the pupils to learn the verses detailed. But the final aim remained recitation, and one was judged as a teacher of poetry mainly upon the number of lines one's children had memorised, and the way these were recited. The teaching techniques involved were those of developing knowledge and skills, while some of the more enlightened schools made a feature of speech training by means of recitation. In this stage of development one may

even now find the teaching of poetry in some schools. That it has educational values is undeniable, since many of the results so obtained are of considerable use to the pupils. A doubt arises, however, when one comes to consider the nature of poetry itself in relation to the needs of the pupils who are thus dealing with it. One may well ask whether poetry cannot administer to some wider and more fundamental human needs than the development of some admittedly useful skills and possibly serviceable knowledge.

All literature, music and art are expressions of human creativity, of forces deeply seated in human nature, i.e. of impulses which we have already seen children themselves in their own characteristic ways possess in common with adults. Modern educational thought therefore maintains that these arts can be brought to serve more fundamental needs of all children than the mere development of skills and knowledge. It, moreover, views the problem involved here as part of a much larger one, viz. that of developing taste. In the dictionary one finds "taste" defined as the "faculty for discerning and enjoying beauty or other excellence, especially in art and literature; disposition or execution of work of art, choice of language, conduct, etc., dictated by or seen in the light of this faculty." Few will deny that the world would be a better place to live in if a general improvement of taste in the wide sense implied here could be effected. The old-fashioned popular view that poets, musicians and the like, were "queer" people lacking in masculinity who had nothing more useful to do than "to play" with life has, moreover, given place to an appreciation of the essential human quality of their work and of the value of their contributions to life itself. Furthermore, to love beautiful works is not now-a-days considered to be a sign of a lack of virility. We see, therefore, in the cultivation of the tastes of our pupils, an educational purpose of a worthy nature. We have noted, moreover, that the individual needs of the pupils themselves are catered for by the kind of development which the discernment and enjoyment of beauty imply. The problem before the teacher is how to foster this development in his teaching of literature, music, art and the like.

We are here upon very difficult and dangerous ground. *Æsthetics* is defined by the dictionary as "the science which treats of the beautiful in nature, in the fine arts, and in literature ; the theory or philosophy of taste in beautiful things." The study is a most fascinating one and well worth the teacher's attention. He will find many conflicting views expressed, as many in fact as there are different views of life itself. This probably accounts for the very wide divergence of opinions upon the teaching involved. A study of the psychology of *æsthetic* appreciation is also likely to lead him to the view that there is no special technique for the development of taste. In the writer's opinion he will be perfectly correct in this view, since there are no "best" ways of getting pupils to develop their sense of values and to enjoy the beautiful. Some ways are better than others, while certain methods do little towards achieving the desired ends and they may even effect just the opposite results by finishing up with repugnance where enjoyment was intended. The situation is further complicated by the fact that the personality of the teacher is, in the treatment of *æsthetic* education, such a powerful factor. A method which is extremely effective when applied by one teacher may be far less effective in the hands of another with different qualifications, interests and personality. The late Sir Walford Davies was perhaps the greatest exponent in modern times of a technique for developing musical appreciation. Yet his methods were peculiarly his own, and his unique personality played a major part in the success which they achieved.

The beginner therefore, in view of the considerations to which we have here referred, is advised in the first instance to guide his practice in the light of a few fundamental ideas which find general acceptance, and to refine his practice according to his subsequent experience and his own artistic, musical, or literary talents. If he has any particular enthusiasms or special qualifications these should be placed at the disposal of the children wherever they serve the needs of the latter and do not lead to an unduly narrow or biased outlook.

According to the definition of taste given on page 192 the

problem of the teacher is that of arranging and conducting experiences which will help his pupils to enjoy and value beautiful things, e.g. poems, pictures, musical compositions and the like, while assisting them to express their appreciation in practical form in conduct, creative activities, speech, etc. This covers a very wide range of school activities, and it is obviously not something to be achieved in a course of set lessons upon "Taste." Rather must one look to the fostering of an attitude of mind in which the pupil's emotional patterns play a dominating rôle, to a progressive growth and development of a large number of factors in his make-up. That this cannot be "taught" as one teaches geography, or science, or arithmetical tables, is obvious. We cannot teach beauty to our pupils since it is something which they themselves must "feel" rather than "know" in the ordinary school sense. We can, of course, teach them to be well mannered by the inculcation of habits and to speak well by the acquisition of verbal skills. Our main aim nevertheless is not merely the setting up of habitual good manners or "nice" speech habits, but the development in the pupils themselves of a real preference for the use of these modes of social relationships. We can also teach our pupils something *about* art, music and crafts, as well as help them to acquire the skills which will enable them in some measure to perform in these spheres. This is certainly of value, if it is wisely directed, but it does not get to the roots of the problem which we are here considering. This involves the development of some much more deeply seated emotional forces needing very careful direction if the discernment and enjoyment of beauty are actually to be achieved.

ENVIRONMENTAL INFLUENCES

We have noted in other connections how susceptible children are to their environments and how suggestion affects their development. The suggestive influence of a pupil's environment has a marked influence upon his standards of taste. Children reared in drab slum-like surroundings grow up insensitive to the finer discriminations in colour, odours and general surroundings which

characterise the tastes of children in more fortunate circumstances. The effects therefore of the school surroundings upon taste are important matters to consider. The architectural features and decorative scheme are usually outside the teacher's control. He has to accept them and do the best he can, within the limits they impose, to effect a tasteful arrangement of the pictures, furnishings, etc., which are under his control. The new teacher, moreover, cannot go into a classroom and very well begin making fundamental changes at the outset of his practice. However much his own susceptibilities may be offended by poor taste in the arrangement of pictures, in the accumulation of dusty illustrative material which he may find hanging around the walls, etc., he would be well advised in the early stages to refrain from criticism or attempted reform. The remarkable way in which these surroundings will "grow" upon him so that he is completely used to them by the end of his practice, should be noted as an illustration of the ease with which human beings become adapted to certain aspects of their environment, as well as of the dangers involved in the acceptance of lower standards. The teacher can, however, avoid adding to any undesirable features which may be present by scrupulous care in the use of any illustrative material, and in the arrangement and neatness of his own apparatus and equipment. If the teacher's part of the classroom is carefully attended to it serves as a useful example to the pupils.

In his dealings with the pupils the teacher can, moreover, help them to a higher standard of taste in the practical conduct of their own affairs. By suggesting arrangements of their work which "look better," by showing them the lay-out of tools and apparatus which leads to efficiency in their work, by insisting upon tidiness of the room, by disapproving of unnecessary noises and so on, the teacher can, in an indirect way, help to maintain environmental conditions which favour the ends he has in view.

The teacher, moreover, must not forget that he himself is an important part of the children's environment. In his speech and manner he can suggest to the pupils desirable improvements in their own speech and manners. He should try to effect this without

deliberately setting himself up as a model and inviting conscious imitation¹ by the children. He should seek to achieve this end by patiently working through indirect suggestion. He may otherwise, through contra-suggestion, achieve just the opposite effect from the one he intends, i.e. the pupils maintain their independence by reinforcing their own standards.

The whole development of taste is a process demanding great delicacy of treatment and involving a deep understanding of children. A "finicky" or fussy approach is highly undesirable. The children tend to label such a course as that of a "crank." The teacher should realise that children love to make harsh noises which grate upon adult ears, to sing in a raucous voice and to be generally crude. While therefore he will not tolerate such things in his classroom, he should not be unduly perturbed if, in the playgrounds or in the street, they do let off quite healthily a little "surplus steam" in this way. On the other hand, there is another side of children's nature in which the teacher can find an ally. At a quite early age they become susceptible to "ugly" and "pretty" facial expressions.² Young children, moreover, often express their disgust at the sight of a "nasty" looking mess such as is sometimes occasioned when an accident occurs in the kitchen. Their vocabulary includes a frequent use of "nice," "nasty," "lovely," "horrid," and similar words. It does therefore appear that children are not altogether without suitable natural impulses which can be further directed by training and by suggestion through environmental influences.

Anything which savours of insincerity in matters of taste should be scrupulously avoided. For example, the "well-mannered" expression of ready-made opinions, taken over from the teacher, which are not genuinely held by the pupils is no real sign of æsthetic appreciation. The teacher himself can help to avoid this in three ways. First, he should make clear to his pupils

¹ Except of course when he is actually demonstrating in skills, e.g. in speech training, when he will deliberately set the model for imitation.

² The Binet tests include discrimination of faces into "ugly" and "pretty" in the fourth year.

that any opinions he expresses are personal opinions which he is not forcing upon them. Secondly, he should help his pupils to form their own opinions, to express them freely, and to discuss them openly. Lastly, he should avoid any insincerity in his own attitudes towards music, art, and other matters of taste. Professed enthusiasm for a view which is merely an expression of a fashion in values, and which is not based upon conviction and appreciation, does not ring true. Children are quick to detect insincerity in a teacher in whom they consequently tend to lose confidence. Sometimes, however, they may tend to accept insincerity in artistic judgments as a matter of course with a definite loss to their powers of really appreciating things worth while.

CREATIVE ACTIVITIES

In practical activities such as craft-work, art, music and dramatics, the teacher will find many opportunities of familiarising his pupils with works of merit. A good deal of the practical work involved in these subjects is of necessity imitative and interpretative. This need not result in undue limitations upon the pupils' development, since by such imitation and interpretation they must necessarily travel in some measure the road taken by the original artist. The playing of a pianoforte concerto, for example, involves much more than the mere direction of one's fingers to certain places upon the keyboard in a predetermined time sequence. It involves phrasing, emphasis, interpretation of musical ideas, etc., which are all part of the composer's original creation. Good teaching therefore will aim at putting the pupil in touch with the composer, to enable the former to feel and think with the latter. In dramatic work the same characteristics appear. In the interpretation and expression of his "lines" the pupil must in some way re-live or re-create the character he is playing. In so doing he must endeavour to appreciate the purpose of the dramatist who wrote the play, and the nature of the emotions which the latter portrays. This re-creation in some form or other is an essential feature of all real appreciation. By a careful selection and conduct therefore of suitable activities of this nature, the teacher can bring to his pupils

experiences which are in a sense comparable to those of the original creative artists and craftsmen.

In the freer creative activities such as composition, and certain aspects of art, pupils can be left to experiment in their own forms of creative expression. Here again a delicacy of treatment is essential. If rules of art are asked for they may quite conveniently be given, provided that the works of the pupils are not forced into a restricting pattern. For example, if in art a particular effect is being sought by the pupil, say, the depicting of shadows in a painting, his request for assistance can be met and some suggestions made. If, however, he prefers to work unaided he should be allowed to do so. Very tactful comparisons with other works may be subsequently made to indicate modes by which he might have obtained a more satisfying effect. In the writer's experience, the majority of children appreciate guidance which helps them to become more articulate in their artistic expressions. The danger the teacher must be aware of is that, in attempting to give this guidance, he may mechanise their expression and rob it of its spontaneity and freshness. Much school art work is criticised on this score.

In craft-work pupils should be encouraged to embody their own designs in some of their exercises. Here again the working to set rules may lead to unsatisfactory results. By familiarising his pupils with productions of merit, and by subtly indicating to them such criteria as the unity and harmony which characterise these works, the teacher can bring the young craftsmen to a realisation of some of the more important qualities of craftsmanship. Tactful suggestions to the pupils regarding ways in which their own designs may incorporate these essentials, without unduly restricting their freedom of expression, will be valuable aids towards the ends we have here in mind. In practice this involves tolerance on the part of the teacher, freedom for the pupil, and an understanding co-operation between teacher and taught in the exercise of that freedom. For example, a book cover must be suitable for the purpose for which it is designed, viz. to cover a book, and it should be in keeping with the book to be covered.

The teacher can well bring his pupils to "see" both these criteria by an examination of suitable book covers and through imitative exercises. When, however, the pupils are applying these principles in free exercises his treatment must be suggestive and not in any way prescriptive. Their own ideas of suitability of decoration, etc., should be embodied in their works. If the standards of taste evinced do not quite line up with those of the teacher, the latter is well advised to avoid at all costs the foisting of his own ideas upon the pupils. This will certainly defeat its own ends. A few tactful suggestions, delicately made, so that they do not in any way restrict the pupil's freedom, are all that a discerning teacher will permit himself to offer.

If the same spirit as we have indicated here pervades the teaching of composition and verse making, the teacher will often find some surprising results. Children frequently write mediocre compositions because they are more or less perturbed by the fear of making mistakes. Their attention is upon the machinery of the business, viz. the writing, punctuation, grammar, etc. Their creative expression is thus cramped and inhibited by difficulties with technique. That the latter should be taught there is no gainsaying, but on many occasions it can well take a back seat and give free creativity full play. The children can then "let themselves go" in perfect freedom. A subsequent formal exercise can well be introduced to produce the finished drafts "ready for publication." In verse composition children are often held back by two considerations, viz. a mistaken idea that it is something which only a very few people can do, and the fear of being ridiculed. The latter can be removed immediately by the teacher. Many pupils, moreover, can be brought to realise that the former objection does not hold when they themselves, with but the minimum teaching of technique, take a hand at writing verses. Individual differences in abilities will very early on become evident, and pupils who cannot make much headway can well spend their time upon more suitable creative work. The writer has, however, seen some promising verses, largely of an imitative character, produced by what appeared to be quite unpromising

post-primary school children in which something more than a mere trace of poetry glimmered. That it was crude and untutored is beside the point. That it showed something which was indefinable but nevertheless an immature attempt at the expression of some deeply seated emotional striving is more significant and gratifying.

"The soul of art," says Nunn,¹ "is the joyous exercise of spontaneity." Creative activities in school should be conducted in such a way that they are characterised by that freedom which gives full play to the pupil's spontaneity. Any technique which we teach should be directed towards enabling the pupil to do whatever he seeks to do "with the ease of mastery which brings joy in the doing."² We can teach our pupils to pass some examinations in arts subjects, and to talk knowledgeably about art, literature, and music without observing either of these important principles. We cannot, however, bring them any great way along the road towards "discerning and enjoying beauty," nor to the "disposition or execution of work of art" unless we make these principles our guides in the creative activities which we undertake with a view to achieving these ends.

The Appreciation Lesson

In recent years the appreciation lesson has become a popular feature of school work. It aims at helping the pupils to discern and enjoy beauty in specific works of art, literature and music. The technique employed is usually in accordance with something of the following nature. If, for example, a poem is being dealt with, a background Preparation is effected by the teacher. This aims at securing the right setting for the poem, with the pupils in the appropriate frame of mind, expectant and ready for the new experience. The Presentation step which follows is so directed as to offer the poem to the pupils in the most attractive and impressive manner. An analysis is made with a view to leading them to "feel their way" into the poem, to gather its mood, "see the

¹ Sir T. Percy Nunn : *Education : Its Data and First Principles* (1930 edition), p. 90.

² Cf. Chapter V.

pictures" involved, develop their understanding of the poet's language, and so on. Finally, the poem is synthesised and re-read as a whole, the pupils' reactions to the experience are examined and a suitable conclusion to the lesson is made. This may take innumerable forms, such as imitative creative work by the pupils, committing of the poem to memory, comparison with other poems, free discussion, etc. In the other arts, such as music and painting, similar methods, adapted to their particular media, are usually employed with the same objectives in view.

That this kind of treatment should be without its critics is too much to be expected. To begin with, authorities disagree about the nature of "beauty" itself, to say nothing about their quarrels regarding what constitutes "art." With regard to the nature of "appreciation" one finds equally discordant views expressed. The fact is that in the whole range of this very difficult field we are dealing with a highly speculative series of topics. One authority will insist that appreciation is just as much an affair of the "head" as of the "heart," i.e. that intellectual insight is just as important as emotional experience. This places a premium upon "teaching" and plenty of it, since here we are on sure ground in which our technique is rather well advanced. On the other hand, some authorities demand insistently that the intellectual elements, especially in music, play a negligible part, and that the emotions of his pupils are the only concern of the teacher. Appreciation, others assert, cannot be "taught," it must be "caught." "Let the poem, the landscape, the sonata, etc., speak for themselves." In this view, any attempt by the teacher "to tamper" in any way with the experience is bound to injure rather than help appreciation, since his will be an intrusive voice.

Unfortunately the teacher cannot wait for authorities to compose their differences since this is something not likely to happen in his lifetime. He has, moreover, a practical problem to solve since he cannot deprive his pupils of the vital experiences for which they crave, and without which their education will be immeasurably poorer. Alec Waugh, in *The Loom of Youth*, makes a strong appeal for the "colour, life, passion," which the development of youth

demands. He is not alone in this since many novelists, critics of education, and professional educationists themselves frequently impress upon us the need for making our pupils' school life real, colourful, and adventurous. As teachers we are urged to break free from the academic outlook, to adopt a more positive attitude to life and to "humanise" our professional practices. It is in the treatment of the arts that the greatest opportunities for doing all these things occur. Our problem therefore is to make use of these opportunities so that our pupils gain the greatest possible benefits from them. The solution proposed in the following pages is again one which is in the main suggestive. It is obvious that a hard and fast technique is undesirable. Each teacher must eventually evolve his own technique according to his insight into the nature of his pupils, his own talents, and the results of his experiences. The recommendations therefore which are offered are expressed in the most general terms.

At the outset it is assumed that the teacher himself is genuinely able to appreciate the art form with which he is dealing. This is an essential in the teaching process involved. The writer has seen some excellent appreciation lessons conducted according to the technique already mentioned with little or no modification of the standard pattern. On the other hand, its application has in the hands of other teachers proved a dismal failure. The reason for this difference is not always to be found in differences of teaching ability itself. More often than not it lies in the fact that the successful teacher was one who really appreciated the beauty of the work with which he was dealing, while his less successful colleague was labouring under the unsurmountable handicap of being unable to appreciate to any marked degree the poem, or piece of music, which he was handling. Mere familiarity with machinery, however erudite it may be, can be no substitute for the essential contact with the life force which energises that machinery.

The success of any teaching aiming at æsthetic appreciation depends upon a number of factors not least of which, in order of importance, is the teacher's preparation for the activity he intends to conduct. This will involve (a) the selection of the content of

the experience, i.e. the particular section of literature, piece of music, pictures, etc., with which he intends to deal, (b) his preparation of his own part in the actual lesson, and (c) the design for the actual conduct of the experience. These are all naturally inter-related but they can conveniently be thought of separately at this stage.

(a) SELECTION OF CONTENT

In his selection of material the teacher will be guided by the purpose of the activity, which is to provide an experience which will be enjoyable for his pupils. He will also have to bear in mind that enjoyment is not the sole criterion, since children can well enjoy experiences which are not necessarily educative or particularly elevating to their tastes. In other words, whatever is selected must be worth-while and the best of its kind. There was a movement at one time to avoid all literary and other works written especially for children, and to attempt to seek out suitable material from the more adult productions which teachers felt would appeal. The one-time popularity of children's "literature" was itself part of the reaction against the then prevailing custom of forcing classics upon children irrespective of their natural tastes. If, however, we do exclude all so-called children's works a great amount of very suitable material of a very appealing nature is needlessly omitted. Barrie, Kenneth Grahame and Walter de la Mare are but three of a large number of writers who have written especially for children and whose works children love. Among musicians we have composers like Schumann, Debussy, Saint Saëns and Elgar whose works include brilliant compositions written to satisfy children's needs. It does appear, therefore, that to exclude a work solely because it was written for children is unwise, though it must be remembered that one which is obviously "written down" to their level, and which they can appreciate as such, is best avoided, since it is liable to be labelled as "sloppy stuff." The criteria must therefore be sought elsewhere, in the quality of the work rather than in the occasion of its origins.

In making his selection of material the inexperienced teacher is strongly advised in the first instance to concentrate upon a

somewhat simplified view of art and to "hasten slowly" to the higher reaches. For school purposes he may conveniently view suitable art as that which expresses something worth expressing, and which has the essential qualities of simplicity, sincerity, and unity or harmony. This is not the whole story but it will provide a good start, and help the beginner to avoid the difficulties occasioned with verse, music, etc., which has within it intricacies of expression, decorative elements, and subtleties which are beyond the scope of the ordinary pupil. It will materially assist him in weeding out much unsuitable material to be found in many school anthologies, collections of pictures and of gramophone records, etc. With these simple criteria in mind he should select for treatment works which are within the compass of his pupils' experience, interests and attainments, since their expressiveness can only be appreciated if the material is so chosen. Children of the primary school stage, for example, are particularly fond of nursery rhymes and verses about animals and fairies, together with very simple story poems. That these are not necessarily poetry, in the strict sense, need not unduly concern the teacher since we are here dealing with the basic foundations of the form and with very immature minds. Later, however, before the end of the primary stage is reached, children can enjoy poems dealing with wider experiences, either real or imaginary, which fall within their scope and in which they are particularly interested. Animal poems such as Walter de la Mare's "Nicholas Nye," or Browning's "How they Brought the Good News," story poems like "John Gilpin" and "The Pied Piper," poems of action, adventure, and simple nature poems such as Binyon's "Pine Trees," are of such a character that their inherent appeal to the children is of great assistance to the teaching involved. In the post-primary school stage a progressive development of experience and interest is encountered and a still wider range of material is therefore at the disposal of the teacher. Narrative verse of a more difficult type can be progressively introduced, e.g. Newbolt's "He Fell among Thieves," or Gibson's "Flannan Isle," and nature poems with a deeper meaning, such as Tennant's "Home Thoughts in Laventie,"

or Blunden's "The Sunlit Vale." These two types are merely illustrative of the wide range of possibilities which are open to the teacher.

A great deal of the poetry which the teacher will naturally select is that which has become well established in our language and which is generally accepted as being of first-rate quality. There is a rich and varied field of very suitable compositions of this nature, and the teacher may be tempted to confine himself to it. There is, however, the danger if he does so, that his pupils may form the impression that poetry is something of a lost art, a form of expression which has had its day and that it relates to a previous age. It is highly desirable therefore that the pupils should be brought to realise that poetry is still being written, that it serves to express the thoughts and emotions of any age, and that it is in fact something which they themselves may quite well hope to produce. The teacher therefore is advised to include in his selection some of the works of modern poets and with this in mind he should be on the look out in modern publications for suitable selections.

It must be reiterated, however, that the teacher should be guided throughout by the experience and natures of the particular pupils for whom he is catering, since *their* enjoyment and *their* powers of discernment are the ultimate determining factors. Pupils readily respond to the stimuli which they *feel* to be vital and within their experience of life as they know it, or can quite well imagine it to be. This fact was illustrated most strikingly to the writer in the following circumstances. The teacher was conscientiously and painstakingly "teaching" Macbeth to a senior class of "grammar" school pupils. The progress was slow and the pupils were listless and lethargic, after a night of veritable hell when many hours of continuous raiding had robbed all but the completely exhausted of any restful sleep. In Act II, Sc. III, however, Shakespeare gives Lennox the following lines :

"The night has been unruly ; where we lay,
Our chimneys were blown down, and, as they say,
Lamentings heard i' the air, strange screams of death,
And prophesying with accents terrible

Of dire combustion and confused events
New hatch'd to the woful time ; the obscure bird
Clamour'd the livelong night ; some say, the earth
Was feverous and did shake."

As soon as these lines were reached the whole tempo of the lesson changed. Tired eyes "popped," incredulity gave place to amusement as the speech became pregnant with meaning, somewhat different of course from that intended by the dramatist. In the light of their recent experiences these pupils found the passage very real and vital. The understatement of Macbeth's laconic rejoinder, "'Twas a rough night," brought forth a hearty roar of laughter accompanied by some remarks about somebody's "telling me."

In his selection of material the teacher will also be guided to a great extent by certain aspects of the form which the author has used. For example, not only must the experiences involved be compatible with the children's own experience, but the language employed must not be beyond their powers of comprehension. If the subsequent examination of the work is to degenerate into a weary hunt for word meanings, etc., the lesson is certain to fail. Simplicity is the keynote to be sought, but even here there is a danger for the unwary. Wordsworth, for example, often uses very simple language to express ideas which may well prove too abstract and too difficult for the ordinary school child to appreciate. The language itself therefore must not be taken as the sole criterion, but should be considered along with the nature of the content of the work and the suitability of the leading ideas for the pupils.

A well-marked and clearly defined rhythm makes a strong appeal to most children. For example, the galloping of "How They Brought the Good News," the "Boomlay, boomlay, boomlay, boom" of the tom-toms in Vachel Lindsay's "Congo," and the measured stately tread of the moon as she "Walks the night in her silver shoon" of Walter de la Mare's "Silver," strike deeply resounding depths of the pupil's inner life. Sympathetically he gallops, beats, and stalks with the poets and in some measure at

least attunes himself to their moods, since the rhythm is part of the essential music of the poems and one of the components of the author's artistry. Children, moreover, are very susceptible to the quality of the diction employed. Vigour and aptness are features which they are quick to seize upon, while striking phrases and turns of speech are repeated and "played with" long after the actual experience of the lesson. "Where are my gym *shoon*?" asked one little girl some days after a lesson on "Silver." "This way and that she peers," mocked her fellow as she continued her search. The

"Wee, sleekit, cow'rin', tim'rous beastie,
O what a panic's in thy breastie!"

and

"That wee bit heap o' leaves an' stibble
Has cost thee mony a weary nibble!"

of Robert Burns's "To a Field Mouse," far outlasted the immediate memories of the treatment of this poem with a class of senior boys of a southern school and were frequently quoted in playful mood. These instances are mentioned not as evidence of successful teaching of æsthetic appreciation, but rather as indications of the ready appeal which language of this nature has for pupils if it is appropriately chosen and presented.

We have here considered, as an illustration, the factors which will help the teacher in the selection of poetry for appreciation lessons. The same principles, however, with suitable modifications, are applicable to this aspect of the teacher's preparation for æsthetic experiences in any other subjects. In music, for example, he will select works which he is reasonably sure will "do something" to his pupils, and in which they themselves can sense some kindred feelings comparable to their own, urging them to take an active part in the experience. Again the criteria of simplicity, sincerity and harmony or unity are useful guides. For example, some of the works of Mozart, who combines simplicity of a childlike nature with supreme genius in technique, will make a definite appeal to most children by reason of their naïve statements. The clear-cut simple melody of Percy Grainger's "Handel in the

Strand," with its intriguing and quaint development, the readily appreciated motif of Strauss's "Moto Perpetuo," and the forthright virility of Purcell's "Trumpet Voluntary" are but a few examples from a big store of musical appeals of all kinds which is available. The leading musical ideas are well within the grasp of the ordinary eleven-year-old, the "wholeness" of the works is something which he can readily appreciate, and they are free from puzzling subtleties which so frequently confuse the issue for young minds. Subsequent developments to works of greater complexity and depth of feeling will naturally be made in accordance with circumstances and the natures of the pupils' needs. But at whatever level the teacher is aiming to conduct the activity he should try and secure that the salient feature of the experience is enjoyment of it by the pupils.

(b) THE TEACHER'S OWN PREPARATION

Although the teacher will be unwise to expect that his pupils will experience the same reactions to any work of art as he himself experiences, or that they will be able to appreciate it in exactly the same way as he does, he is advised to get his own ideas upon it clearly sorted out first. He is then in a better position to avoid the dangers of forcing his own subjective estimates upon his pupils. He should then try to "see" the work through their eyes or ears as the case may be. The degree to which he is able to do this is an important measure of the success which he will secure. He must, throughout the subsequent activity, be concerned with their ideas and feelings, and any "teaching" which he may do, must be directed towards utilising their responses to put them in touch with the artist, poet, or composer concerned. In so far as he does this, without deliberate and conscious intrusion of his own personality, he can feel that he is helping his pupils' appreciative growth. This, of course, is a counsel of perfection and few teachers can make themselves at once "transparent" and yet effective in the classroom and, as we have already seen, they cannot escape from the suggestive consequences of their own enthusiasm.

Some authorities maintain that if our attention is attracted and held by the enthralling technique of a violinist or a pianist, or if the personal qualities of an actor excite our interest, then we are failing in our appreciation of the work of the composer or dramatist. It is granted that if either of these is foisted upon us deliberately by any performer the interpretation will lack sincerity and fall short of what is required. It is, however, only human nature to admire in others accomplishments which we ourselves would like to possess and, even when the performer is obviously sincere, a certain amount of attention to the artistry of the performer himself is inevitable in the presence of genius. On a humbler plane, perhaps, the teacher will inevitably experience the same kind of thing. In actual practice, therefore, the teacher should endeavour to make any renderings of literature and music of such a nature that the pupils hear Shakespeare read and Chopin played by Mr. "X," rather than Mr. "X" reading or playing the works concerned. He should endeavour to keep the latter aspect out of the picture as far as he is humanly able, and to avoid standing in the way of the originator of any work he is interpreting.

The foregoing considerations will involve the teacher in considerable preparation of his own performance before the actual lesson takes place. He will desire to present the work during the actual lesson in the most effective manner possible. If a piece of music is to be played he may have the help of a suitable gramophone record. If, however, he himself intends to play an instrument, or sing, his attention will be upon the nature of the performance which he intends to give and he will need to practise the type of rendering which will be most effective for the purpose in mind. If he is dealing with literature very careful rehearsal of the oral reading is advised. Reading at sight, even of familiar works, is rarely as effective as reading which has been well rehearsed with a particular purpose in view. Phrasing, intonation, and inflexion should usually be worked out with a critical eye to the effects likely to be produced upon a particular set of pupils.

Lastly, the design for the lay-out of the lesson should be carefully thought out with all the usual principles in mind (see

Ch. XI), with especial attention to the ways in which the teacher is prepared to meet expected difficulties which he should try to anticipate. The general principles which are most useful guides in this part of the teacher's preparation are best derived from a consideration of the conduct of the activity to which we turn in the next section.

(c) CONDUCT OF THE LESSON

In the matter of technique for the conduct of an activity which aims at æsthetic appreciation it is safe to be positive about two points only. The first is that the pupils should be ready for it. The second is that the lesson should be so conducted that the pupils enjoy it. To go further is to invite criticism and difficulties, to say less is to ignore the fundamental purposes of all such teaching. Therefore we can lay down two teaching steps as essentials, viz. Preparation and Presentation.

Preparation.—In the conduct of appreciation experiences this step is of the greatest importance. If the children are not in the appropriate mood, if their physical conditions are unsuitable, or if the Presentation necessitates some previous development which is lacking, there will be little chance of achieving success.

Physical conditions are most important. Children cannot be expected to experience any great enjoyment if the room is cold and cheerless, overheated or overcrowded, if they are standing uncomfortably or are seated in a cramped position. Ruskin has somewhere pointed out that descriptions of mountain scenery indicating the truest appreciation have not come from mountaineers, but from others who have not to contemplate beauty in the course of hard physical exertion. "Psychic distance," the feeling of freedom which comes with release from material considerations, is undoubtedly a factor of importance in the conditions favouring appreciation. While one must not forget the possibility of music and other forms of art reinvigorating and inspiring suffering and weary human beings it does appear that children in school will be most likely to enjoy the Presentation if they are made as free as possible from discomfort.

Where possible the suggestive influence of the classroom environment can be brought into play to give the appropriate "atmosphere." The theatre, concert hall, or cinema is usually designed with this especially in mind. Nothing theatrical nor any particular straining for effect is required in the classroom since this may have the reverse effect of what is intended and distract the pupils' attention. A few subtle touches by the teacher in the matter of arrangement of flowers, or of suitable pictures, is often all that is needed. Perhaps the most effective method of all is the clearing up of all previously used equipment, with a general straightening up of the room, and a little rearrangement of seating. The children then settle down expectantly for the lesson to begin. By suggestion and by the tidying-up of the room the teacher has made them feel that what is to come is something of moment, an "occasion" as it were. Further "atmosphere" may be provided by a piece of music, strictly "in character," played upon the piano, or by means of the gramophone, or possibly by a minute or so spent in complete silence. Whatever is done in this connection, however, should be strictly "background" experience and should be appreciated by the pupils as such.

The introduction of the new experience has next to be effected. The teacher may have already taken some steps in this direction, e.g. in a previous language lesson he may have dealt with difficult words which are to be encountered in a particular poem, or he may have prepared for a poem such as Newbolt's "He Fell among Thieves," by a reference to its forthcoming study when dealing in a geography lesson with Kashmir and its inhabitants. The wise teacher always tries to look ahead in his work, to make preliminary dispositions with a view to smoothing away difficulties and heightening the interest of his pupils. On the other hand, there will be many occasions when he comes to the lesson without any material previous preparation. His object must then be to make the Preparation step as short as possible consistent with effectiveness. "The play's the thing," and in school any "curtain-raiser" should not overshadow it nor be out of keeping with it. If the children are ready waiting for something interesting to happen,

and if the work is suitable, it may sometimes be the best plan for the teacher to play the music or read the poem, etc., without any preamble, i.e. to get straight on with the Presentation step.

It may not, however, be always advisable for the teacher to plunge straight into the Presentation without previously building up a suitable background. This will depend largely upon the nature and difficulty of the work to be presented, and upon the pupils. The aim of the first rendering is to make it as impressive as possible, and it may be essential to direct the pupils' attention or supply some preliminary information to effect this. For example, the writer has found that "The Sunlit Vale" strikes the average student as an "adequate" but not very impressive piece of work when first read to him without any preliminaries. Immediately, however, the author is revealed as Edmund Blunden, and the circumstances of its composition are realised, the work takes on a new significance and the evaluation of the listeners is correspondingly revised. With older students it is not perhaps altogether bad teaching to withhold such information until after the first reading, and to rely on a deepening of significance as the activity develops. With younger children, however, first impressions are liable to outlast other experiences and to remain dominant, though even with these pupils whatever is done during the lesson should aim at an intensification of interest and an increment of their regard for the work.

Long biographical accounts of authors and composers which do not throw any significant light upon the interpretation of the coming work are largely a dissipation of effort. Personal details of birth, education, marriage, etc., should be carefully abridged even though they appear in school books, with a view to focusing the pupils' attention and interests upon those points only which are of immediate concern in helping them to appreciate the author's or the composer's expression in the particular work before them. For example, one often finds pupils introduced to their first Shakespearean play by a long and full account of Shakespeare, his life, marriage and career as a playwright. The time could frequently be much better spent in making the play take pride of

place after a comparatively short talk upon the kind of man who wrote it, the type of audience for whom he wrote, and the conditions of its production. The fuller details can subsequently be filled in as they become significant in the works studied. A safe rule is to introduce only those personal details about authors, painters and composers which help the pupils to a greater understanding and feeling for the particular works which are studied. For example, it may be useful to think of young Mozart composing the piece which is about to be played while his elder sister sat beside him reading aloud a fairy story. This throws some light upon the kind of person the composer was and upon his work. It therefore helps to put the pupils in touch with the creator and with his mood, as he "made" his music. If the pupil is told, however, that Purcell's "Trumpet Voluntary" was not composed by Purcell at all but by a contemporary of his named Jeremiah Clarke who afterwards shot himself in St. Paul's Churchyard as a result of an unhappy love affair, his appreciation of the work concerned is not aided in the least. He has merely received an interesting tit-bit of information which may help him to be annoyingly knowledgeable to other people.

The anecdotal type of introduction can, however, serve a useful purpose in suitable circumstances. For instance, if the pupils are about to hear Sir Francis Doyle's "The Private of the Buffs," their interest will be enhanced and the "drunken private of the Buffs" will enter the picture as a real character, if the story of Moyse and his proud sacrifice, which the author commemorates, is told. The pupils then know why "Indians whine and kneel," and for what reason the "Poor, reckless, rude, low-born, untaught," was "Doom'd by himself so young." The first reading therefore goes home with greater force than would be the case if this information only came later. The intention of the poem is, moreover, clearly realised, and this is often a matter of considerable importance for true appreciation. For example, the purpose of Browning's "How They Brought the Good News" eluded the present writer for years. As a schoolboy he was told that no such ride ever took place, that nobody knows what the news was, and

that the poet was on a holiday jaunt when he wrote it. The result was that the poem was written off as a bit of clever verbal expression in which Browning had merely shown how he could "make words gallop." It was only after school-days that the writer discovered the key to be the intense love which Browning possessed of horses in general and of his own horse in particular, which prompted him to pay this tribute to animal devotion while he was away from England. A Preparation step in which this was mentioned might have helped to direct the pupil's attention to a most significant characteristic of the poet's of vital concern to the appreciation of the poem. Again, the writer does not wish to be dogmatic, and many teachers may well prefer to leave this to be educed under their direction from the poem itself during the Presentation stage.

With regard to the Preparation stage in other arts, or in music, the reader is advised to direct his practice in accordance with the principles illustrated above. In music particularly, assistance is to be obtained from the B.B.C. teachers who, without exception, show rare skill in handling this technique. The interests of the listeners are aroused by a number of devices, e.g. a reference to previous lessons, a few bars of music, an anecdotal introduction, a short but significant biographical reference, or a few explanatory sentences. The purpose of the immediate activity is made clear and the introductory work, having served its purpose, merges naturally and smoothly with the Presentation. There is room, moreover, for experiment in this direction, and the teacher may well be able to think out ways in which to get his pupils in the right mood for the new work, which need not be strictly orthodox. All that can be insisted on is that this step should fulfil its purpose, i.e. that it should actually make a good "lead up" to the Presentation, that it should contribute towards the pupils' subsequent enjoyment of the work concerned, and that it does not usurp an undue place in the total experience.

Presentation.—In this step the teacher may adopt any plan which he pleases provided that (i) the pupils are given an opportunity of deriving enjoyment from the experience, and (ii) that their activities are so directed that their appreciation of the work is

enhanced. His aim should be to lead them through their contact with the poem, music, picture, etc., to form *for themselves* an evaluation of it in terms of their own likes and dislikes. This involves the conduct of the experience in such a way that the work itself must stand every chance of exercising its appeal for the particular pupils concerned.

The foregoing implies that even under the most favourable circumstances some members of the class may not like the particular work offered to them. This is a fact which the teacher would do well to realise at the onset. The pupils' likes and dislikes are personal, private possessions, and as such they are often outside the teacher's control. He must not be deceived, however, by the possibility of obtaining from his pupils statements to the effect that they do like a particular piece of art. He would in fact be well advised not to ask them whether they like it or not. The feeling that they ought to like it, the suggestive influence of the teacher's enthusiasms, the presence of their fellows, and politeness will often combine to produce a positive answer when inner feelings are really quite indifferent or even negative.

To ask pupils to give reasons for their liking of a piece of art, or to evaluate its excellence, may also produce a crop of answers which are not necessarily strictly honest, though the pupils themselves may be perfectly unaware of being in any way dishonest. In reply to the question, "Why do you like this?" or "Why is this a good poem?" one usually obtains a whole series of clichés and jargon, e.g. "Because of alliteration, fine words, beautiful thoughts, rhyme, rhythm, good pictures, etc. . . ." It really means very little in terms of appreciation, and it is often no indication at all of the pupil's feelings. If a child really likes a work, i.e. if he is genuinely attracted by it, and feels that it has "something" for him, he may not know why he is so attracted nor what that "something" is. This may even elude him if he tries to run it to earth. It is therefore unwise to ask him to do it. The teacher will naturally want to know how the pupils are responding, and he can best do this by relying upon his observation of the class, his own susceptibilities to the class "atmosphere,"

and noting the remarks the pupils make and the spontaneous expressions of opinion which they offer. This is a far safer method than asking them to express something which they may not know, and which at any rate is not of vital concern since the criterion of successful teaching is the quality of the emotional experiences of the pupils during the lesson.

The first rendering of the work to be dealt with, as we have already noted, should be made under the most favourable and impressive conditions possible. If music and literature are being offered, the performance should be of the highest possible quality. Records, in good condition, either for music or poetry reading¹ may well be used, or the teacher himself may perform. As a general rule the work should be presented as a whole, without interruption at this stage, though of course a movement from a concerto, symphony, etc., can well be considered a "whole" for this purpose. Since music is certainly to be heard, and poetry makes its greatest appeal to the vast majority of pupils when it is read aloud, the teacher will find it advisable to allow his pupils to devote their whole attention to listening, and not to require them to follow the music in a score or the poem in a book.

From this stage onwards in the Presentation, i.e. after the original reading or playing has been performed, there can be no hard and fast definition of technique. The greatest delicacy of treatment is required² since one can so easily stress intellectual elements at the expense of the emotional experiences, while the latter can quite well lose their tenseness, especially in poetry, if significant meanings continue to elude the pupils' understanding. Throughout the subsequent activity the teacher should therefore endeavour to maintain a discriminating balance between these two aspects of the pupils' activities. Skilled teachers of poetry succeed in helping their pupils to a greater understanding of the poet's expression in his work and at the same time intensify their pupils' interest in, and regard for that work. The techniques employed

¹ Some good records by readers like the late John Drinkwater and Mr. John Gielgud will often be found useful.

² We have noted previously that some authorities are opposed to any further treatment at all.

by these teachers vary considerably, not only from one teacher to another, but also in the same teacher's work according to the type of poetry with which he is dealing and the ages of his classes. Only the most general recommendations are therefore possible.

Some very effective teaching can be carried out by allowing the course of the lesson to be guided by the pupils themselves after their first acquaintance with the poem. The teacher invites discussion and leads it so as to bring out the main ideas first. Subsequent questions and observations by the pupils reveal obscurities and misconceptions which need handling. The finer points of the poem are then tactfully approached and discussed. The teacher's direction throughout the whole step is suggestively exercised in an unobtrusive manner.

It is sometimes advisable, especially with younger or less able pupils, for the teacher to maintain a more obvious direction of the Presentation stage. It may be considered necessary to re-read the poem before commencing its examination, possibly with the pupils following in their books. This reading may be oral or silent according to the teacher's judgment. The teacher then helps the children to "feel their way" into the poem. By questions, their grasp of the main ideas is sounded and developed if necessary, e.g. "What kind of a donkey was Nicholas Nye?" "Did he have any friends?" "Was he happy or sad?" "How do we know?"¹ Subsequent analysis of the poem is directed by further questions and discussion to bring out the poet's full meaning and to deepen its significance for the pupils. Throughout the activity the idea of the poem as the work of a human being is suggestively reiterated to the pupil. The form of the questions used will often effect this, e.g. "What does the poet mean by 'Rapt on his pinnacle of song'?" or "Why does the poet say, 'Those are celestial chimney pots'?"²

In narrative verse it is often possible to get the pupils to "feel with" the characters and so bring home to them the purpose which inspired the poet to write it. For example, in Doyle's

¹ From "Nicholas Nye," by Walter de la Mare.

² From "The Blackbird," by John Drinkwater.

"The Private of the Buffs," discussion and questions can bring out why "An English lad must die," how he was "Doom'd by himself so young," and what has led him to stand "In Elgin's place, Ambassador from Britain's crown, And type of all her race." By suitably building up the setting from the expressions of the poet, the teacher can arrange favourable conditions for the pupils' "projection" into the hero's person. He should not attempt, however, to force this but should leave it to eventuate naturally. The poet's tribute will then take on greater significance through the pupils' own imaginative experiences.

Whatever method is selected, from among the very wide range of possibilities, successful lessons are usually characterised by first-rate reading and by pupil-activity so directed that the pupils take a full and enjoyable share in the experience. If any analysis is attempted, during which the poem has been read in sections, the whole work should be read in its entirety at least once before the lesson ends. With short poems it may be possible for the children to hear it read not only by the teacher but also by really good readers in the class. If it has been appreciated it will bear reasonable repetition provided that the renderings are first-rate.

No special Application step has here been recommended for teaching of this nature, but what is comparable to this step should arise naturally in the forms which the pupils' subsequent activities take. If a poem is appreciated some pupils will wish to memorise it, many will like to read it again or hear it read at a later date, and some may even attempt to write verses themselves in imitation of the admired poem. The teacher should watch particularly this type of follow-up, or lack of it, with a view to evaluating the success of his teaching. The immediate response of the pupils during the lesson is a very good indicator, but the subsequent developments will help him further to refine his self-criticism.

Nothing has so far been said in this chapter about the vexed problem of the teaching of the technique of the poet. Many poetry lessons in schools direct the pupils' attention to the mechanics of poetic composition, rhyme, rhythm, diction, etc., and their use by the poet to obtain his "effects." In the main, however,

the present writer feels that, except in a few circumstances,¹ and possibly with older and abler students, appreciation is very rarely enhanced by making this study a prominent feature of poetry lessons. Such knowledge as may be required by the pupils concerning the techniques of poetic composition may well be taught in connection with their own creative efforts in verse writing.²

The writer has again in this section illustrated the principles by reference to poetry, but the reader can well make his own inferences with regard to other subjects. For example, in prose literature which is primarily read for pleasure and not for information, the same principles will obtain. Variety of treatment, good reading, and wisely directed enjoyable pupil-activity, together with a careful selection of books, will be the essential features of successful teaching. In music, one can do no better than study and adapt the methods employed by the radio teachers. Observation of their work at the listening end, in the presence of the pupils, has enabled the writer to straighten out a good many of his own ideas upon this very difficult but immensely important problem of æsthetic appreciation in its relation to pupils of school age.

In conclusion, the teacher is advised in the first instance to observe carefully other teachers at work upon the particular branch in which he is interested. He should then formulate his own technique, watch the results critically, and modify his subsequent practice accordingly. There is room for a great deal of experimentation in this type of work. The field is an extensive one in which freshness of ideas and bold departures from the orthodox are likely to be welcomed. In modern education it is highly probable that the importance of the development of taste is likely to become increasingly recognised since it is freely admitted that complete living involves more than knowing and doing, and that emotional development is of supreme concern. Furthermore, it is now generally recognised that the capacity to discern and enjoy beauty is not reserved for a fortunate and selected few but one

¹ E.g. in a poem like "How They Brought the Good News," it can quite well be brought out that the verses "gallop," and illustrated by the actual reading, or even by the "tapping out" of the rhythm.

² See the general principles indicated in Chapter V.

which is in some measure shared by all children of all types. Close observation of the work of a very large number of teachers who achieve success in this field has convinced the writer that the best results are obtained by teaching which is conducted in the spirit indicated in this chapter. The successful teachers, however, are those who can bring some individual quality to their work which vitalises it and inspires the pupils. The exact nature of this essential quality eludes description. It is intangible yet very real, an inner force which goes beyond one in its contacts with external things. It cannot be "learnt," but it can be sought and possessed as a result of patient humble effort on the part of any teacher with moderate equipment and with normal sensitivity.

CHAPTER X

INDIVIDUAL, GROUP AND CLASS TEACHING METHODS

AMONG the legacies which we have received from the last century is the collective, or class method of teaching. The assumptions underlying this method are that a class of children can be taught as a unit which can be kept at work upon exactly the same material, in exactly the same way and that the rates of the progress of individual children are not such as to exhibit deviations of moment. During the primary stage of his education the present writer was taught exclusively by the collective method. Collective class reading and recitation, chanting of tables and other routines, collective answering in oral lessons, together with collective drills for such operations as "taking up pens" and raising desk tops and seats, were the universal rule. Even when individual work was undertaken, in writing and "sums," the teacher took care to keep the class strictly together, in every line written or "sum" undertaken. Later methods, which developed as classes became smaller and ideas upon education changed, departed somewhat from these earlier practices, a great deal of "dead wood" was cut out from the educational tree, but its roots even now in some schools remain deeply embedded in the class method. "Chalk and talk," as it is somewhat frivolously termed by the profession, is still to be found in many places occupying a goodly portion of the time of the pupils and the teacher. There was a time when its fate appeared to be sealed by the contributions of the psychology of individual differences which showed that some of the basic assumptions underlying the method were unsound. It was, however, given a new lease of life by the modern method of classification whereby children are brought together by reason of common characteristics into classes which form parts of the "ability stream" organisation of the schools. The children are in fact classified so that they can be "taught together."

Criticisms of the collective method of teaching have come from a number of directions. The Montessorians broke away from it in their development of a method for teaching young children by individual activities which involved the use of "didactic" apparatus. Later there came the challenge of the Dalton Laboratory Plan. This Plan was originated by Miss Helen Parkhurst at Dalton, Massachusetts. The main features of the Plan are an almost complete rejection of class teaching methods in favour of individual work and the abolition of time-tables as we know them. Classrooms become "subject-laboratories" in which the pupils pursue their studies with the help of the teachers and individual "guide-sheets" which are drawn up for them. The learners themselves undertake the responsibility for organising their work and allocating the time which they spend at the several subjects, within the framework of a contractual obligation which they themselves sign. They enjoy the correlative freedom which this assumption of responsibility on their part implies. Among other things, the Plan is an attempt, and a highly successful one under certain circumstances, to provide an education in self-development and social co-operation for the pupils, and to solve the problem of the differing rates of progress which are observable among all groups of children even when they are classified by ability.¹ Miss Parkhurst writes: "Children learn, if we would only believe it, just as men and women learn, by adjusting means to ends. What does a pupil do when given, as he is given by the Dalton Laboratory Plan, responsibility for the performance of such and such work? Instinctively he seeks the best way of achieving it. Then, having decided, he proceeds to act upon that decision. Supposing his plan does not seem to fit his purpose, he discards it and tries another. Later on he may find it profitable to consult his fellow-students engaged in a similar task. Discussion

¹ For further details of the plan the reader is referred to Helen Parkhurst's book: *Education on the Dalton Plan*, Bell & Sons, Ltd., 1923. The plan attracted a good deal of attention, and many schools in this country adopted it. Its popularity has waned somewhat in recent years for a variety of causes. It has not, however, been without very considerable influence upon the development of a number of enlightened methods in our schools.

helps to clarify his ideas and also his plan of procedure. When he comes to the end the finished achievement takes on all the splendour of success. It embodies all he has thought and felt and lived during the time it has taken to complete. This is real experience. It is culture acquired through individual development and through collective co-operation. It is no longer school—it is life."

Another challenge to our traditional class teaching methods comes from the originators of the Project Method of Teaching.¹ This not only cuts across our traditional class organisation in many of the activities involved, but it also attacks the traditional curriculum. A project is, strictly speaking, a problem situation which has not only to be solved but the activity involved is actually carried to completion, e.g. on page 148 the example which we examined was a "problem." It would graduate into a "project" if the preparing of the plot, its seeding and subsequent cultivation, were actually carried out. The whole idea of the Project Method is to teach the pupils, through the practical solution of problems, to develop their knowledge by "acting out" ideas in the course of which they come to appreciate their real significance. Skills and principles are learnt exclusively as a result of the pupils' felt needs to do something, to construct, to master some situation practically, to undergo some desired experience, e.g. to build a chicken-house as part of a real venture in keeping poultry, to present a play, to give an orchestral or choral concert, to make a geographical survey of a particular area, to prepare a historical guide book, to produce a newspaper or magazine, to run a school garden and the like. These activities, if they are to be made the sole means of the education, will inevitably cut across the timetable organisation to which we are accustomed, as well as across the ordinary class-teaching organisation. For example, in preparing to present a play the pupils will have their own particular jobs to do, the actors to learn and rehearse their parts, the young electricians and scene painters to prepare the effects, the dressmakers

¹ Cf. J. Dewey and E. Dewey : *Schools of To-morrow* (J. M. Dent & Sons), 1915, and W. H. Kilpatrick : *The Project Method: The Use of Purposeful Act in the Educative Process* (New York ; Teachers Columbia University), 1918.

to make and fit the clothing, etc. All this takes time, and if it is attempted in a series of isolated "lesson" periods the co-ordination usually breaks down and the whole business hangs about such a long time that interest flags. The result is that the time-table inevitably goes by the board if the teacher wishes to make a success of the production. Where out-of-school projects are involved the ordinary time-table is clearly impossible.

It is impossible to foretell with absolute certainty the exact trend which education in the future will take. It is quite conceivable that individual methods of the Dalton or some other type, or project methods in their original or some modified forms, may possibly become more firmly established than they are at present and sweep away time-tables, class teaching, and other characteristic features of the present-day schools. The facilities which eventually become available for education, no less than the force of the educational ideas behind these or any other educational movements, will determine largely the shape of things to come. At present the teacher is compelled to deal with conditions as he finds them and to make the best possible use of them in the interests of his pupils. A typically English solution is to effect a compromise in teaching organisation, so as to obtain, within the limits of the school organisation, as many as possible of the advantages which are claimed for collective class teaching, individual work methods and group activities. It is an accepted principle that the individual pupil should, wherever possible, proceed at his own best rate. He should not be kept back by slower pupils nor forced to waste his time upon work which is beyond him. It is also admitted that collective class teaching methods can and do serve a very useful purpose in certain types of activities as well as contribute to the solution of difficulties arising out of restricted supplies of equipment. The value of group work within a class is freely admitted, both for developing social qualities and for facilitating the members' progress. Let us therefore turn to a consideration of the characteristic features of the three types of methods with a view to relating them to the main school activities for which they are best suited.

Individual Work Methods.—It is obvious that the acquisition of a skill is a matter of individual learning. Reading, writing, arithmetical computation, handwork, swimming and the like, are accomplishments which the pupil must make his own, a personal development in which his own particular neuro-muscular and mental organisations are primarily involved. The quality of these organisations will, moreover, materially affect his progress in the mastery of the skills concerned. It does appear therefore that, although it may be very convenient for a teacher to use collective class-teaching methods in the first part of the Presentation step, he can only really look upon this as a make-shift procedure consequent upon the conditions under which he works. The actual acquisition of the skill, together with its practice, is a matter for individual methods of teaching. To this end he should arrange his exercises and grade the work so that the brighter pupils can forge ahead while the duller ones are kept employed upon work which is well within their range. In such subjects as arithmetic and language study, carefully graded and selected text-book exercises are useful, “free” activity periods can be provided for individual practice in physical culture, and progressive individual exercises may be devised and adapted for individual pupils in craft, etc. This method involves close supervision on the part of the teacher and a careful recording of the work done and progress made by individual members of the class. Without this record conditions may become chaotic, and the values which should come from this approach are consequently lost in the resulting confusion. Some teachers defend their retention of the obsolete and unprofitable collective method of teaching skills on the ground that, in their own words, “You do know how far every child has got in the work.” In the writer’s opinion this attempted justification is unsound.

When it comes to the development of knowledge it is obvious that in securing the active co-operation of the children in the process there will be many opportunities for individual work, which will increase as their mastery of the fundamental skills, reading, writing, etc., progresses. The whole world of books

is at the pupils' disposal for the purpose of obtaining information. Too often teachers tell children what the latter ought to be able to gather from their own reading. Private study, or silent reading as it is often called, will therefore form the means whereby a great amount of valuable information is obtained. It may occupy the whole of a lesson period or form part of a Presentation which the teacher is directing in which other methods are also involved. The technique for conducting this activity is discussed in Chapter VIII.

Group Work.—If we go into an infants' school classroom where the children are practising reading we are struck by the fact that every child is practising the skill by oral methods. There is a general but restrained buzz of childish voices as each of the members of the class reads aloud material which is appropriate to his or her particular stage of progress in the acquisition of the skill. Unfortunately as children get older, and as their voices get heavier, this method of developing reading skill becomes impracticable since the volume of sound increases to such a degree that it distracts attention and interferes with the children's practice. Two solutions are usually to be found : (a) reading round the class, and (b) group reading. In (a) the collective method of teaching is resorted to and one pupil reads to the rest of the class. This means that one pupil is practising the skill while the others are supposed to be listening and following in their books. Theoretically the remainder may profit from the experience but practically, apart from the difficulties occasioned by individual differences in the rates of progress, it is found that while some follow the reading in their books, others may read on, and many "lose the place," together with all interest in the proceedings. At any rate the teacher can only be sure at any moment that of the pupils one only, viz. the reader, is actually obtaining any practice. The group method (b) is a compromise between the class teaching and the individual work methods. The pupils are grouped together by reading "ability," determined either by diagnostic tests or by the teacher's subjective estimate of their attainments. Each group is given a book to read which is appropriate to its general standard of attainment, and the members of the groups read aloud in turn to one another. The numbers of pupils

who are at any moment obtaining practice in reading exactly corresponds to the number of groups. The advantages of this method include not only increased practice for individuals, but the possibilities of maintaining interest through material which is appropriate to the abilities of each group.¹ The teacher may also concentrate upon those who need his attention most, viz. the weakest readers. The differences between the rates of progress in other skills, e.g. in arithmetical computation, are also eased by the method of "ability" grouping within a class. Where indeed these differences give rise to a very wide range of ability the class-teaching method almost certainly breaks down and the teacher has perforce to resort to some form of group work. The use of the method in teaching spelling has also been illustrated on page 108.

The advocates of the Project Method and the Dalton Plan all claim that among the advantages of these methods is the social value which children derive from the co-operative work involved. Grouping in any class for suitable activities other than the acquisition of instrumental skills carries this advantage. For example, children can be grouped to write the dialogue for a play, a committee deciding subsequently, from among the finished plays, the one which will be put into production. Different parts of the school garden can be allocated to groups of scholars who take responsibility for their upkeep. Decorative schemes for the classroom can be worked out and subsequently executed by groups of pupils working on the portions allocated, under the co-ordinating influence of the teacher. A local survey in geography can be subdivided so that separate groups take responsibility for making their own contributions, which are subsequently pooled and become the class effort. A class discussion is often best prepared by allocating certain questions to groups of pupils who have a preliminary meeting and thrash out the particular problems assigned to them. The spokesman is selected, and he or she puts forward the group view in the combined discussion. Finally, the use of teams, not only for competitive work within the class organisation

¹ The writer has found a range of six "reading" years in the abilities of a "B" Class of eight-year-old children.

but also for apparatus work and games, is a recognised feature of modern physical training.

To sum up we can say that group work can be used effectively:—

- (1) to provide individuals with practice which would be denied them under the class teaching organisation ;
- (2) to use equipment, apparatus, etc., to full effect ; and
- (3) to give opportunities for social training through co-operative activities.

Collective Methods.—The collective or class method of teaching can be used to excellent effect when it is particularly well suited to the work in hand and also in cases where it is most convenient.

In subjects of an inspirational nature such as religious knowledge, literature, history, and music, it is almost essential for the teacher in many of the activities involved to have a fairly substantial group of pupils to teach. Let the reader attempt an appreciation of a section of literature with but two or three pupils, and he will discover how “empty” the experience tends to become. The “sympathy of numbers,” which expresses itself in a characteristic “group feeling,” seems to be essential for successful work of this kind. The characteristic life quality of a class, to which we have made previous reference (p. 78), includes in its manifestations a kind of collective emotion which can be used by the teacher to give body and drive to the experience which he is conducting. It is an intangible but nevertheless very real influence which comes from the fusion of individual emotions and which affects both the pupils themselves and the teacher who is directing those emotional forces. Oral lessons, and oral teaching which occupies parts of certain lesson periods, have therefore a very definite place in teaching, especially in such subjects as those which we have mentioned. Even where our ultimate aim is to set the children upon individual work we can often give a few minutes’ collective instruction which will stimulate interest in that work and make clear its purpose to the pupils.

It should be borne in mind, moreover, that, in spite of all that may be said about the need for individual development in skills,

knowledge and initiative, and there is no gainsaying these essentials in education, the pupils themselves do derive from collective activities the satisfaction which comes from acting, thinking and experiencing situations with their fellows. An activity or experience often gathers an incremental value through being "shared" with others.¹

A very experienced infants' teacher once confessed to the writer that, although she was a firm believer in individual work methods for all development of children's knowledge and skill, she occasionally "slipped in" a collective lesson because she found it uneconomical "to say forty separate times to as many individual children" what she could quite easily say once to the whole class. Although the lady concerned made her "confession" as if she were admitting an act of treachery to the cause which she served, it does appear to the writer that her action was a most sensible one for which no apology was needed. Wherever the class method of teaching effects an economy of time and effort, provided that the development of individual children is not restricted by its use, it can be profitably and safely used by the teacher. In teaching there will often come such occasions when the class as a whole can be conveniently handled as a unit without hampering or restricting the work of any of its members. The following list of suggestions is offered to the teacher for consideration in this connection as circumstances in which the collective method is of value :—

- (i) The amplification or testing of the results of individual and group work.
- (ii) The discovery and removal of misconceptions which have arisen during individual and group work.
- (iii) The systematisation of knowledge which has been acquired

¹ Young children are particularly susceptible to this kind of influence. When a child, discovering something of intense interest to him, insists on his elders or fellow playmates sharing that discovery, his motives are not always as altruistic as at first sight they might appear. The pleasure and excitement exhibited by the others concerned will undoubtedly "boost" his own pleasure. In this way "sharing" does not reduce emotional experience but has the contrary effect of increasing it.

during a course of "mixed" collective, individual, or group activities.

- (iv) The clearing up of general difficulties which have arisen in group and individual work.
- (v) The bridging of the gap in activities which is occasioned by shortage of materials, e.g. lack of suitable books, apparatus, or some other type of equipment.
- (vi) The effecting of an economy of time and effort, e.g. in introducing a new rule in arithmetic, giving preliminary instructions in science at the beginning of practical work, and demonstrations in science, crafts, physical culture.

In conclusion, it must be reiterated that what has been put forward in this chapter is suggestive rather than prescriptive. The teacher must ultimately work out his own technique according to all the circumstances involved in any particular piece of teaching. In most teaching practice there are no "rights" and "wrongs" in matters of methods of a definite objective nature comparable to what one finds in such things as the "rule of the road" or paying one's rent. All that can safely be said is that certain methods, in a given set of circumstances, are better than other methods, or that some ways of approaching a professional problem are likely to succeed while others are practically certain to prove a failure. A hard and fast adherence to any set of rules is likely to produce a mechanical and rigid uniformity which detracts from teaching efficiency. As a general rule therefore one would expect to find that a course of lessons or even a single lesson would, according to the circumstances, include collective class teaching and individual work, while group activities may with advantage be made use of in subjects which lend themselves to this type of pupil organisation.

CHAPTER XI

THE TEACHER'S PREPARATION

It will be obvious from what has been said in the preceding chapters that careful planning of teaching activities is absolutely essential. It is true that one finds many experienced teachers who can go into a classroom and embark straight away upon a lesson without their apparently having given a moment's previous thought by way of their own preparation. This is deceptive to the beginner, who should always remember that these teachers have probably had years of real preparation for that lesson, in the form of cumulative experience which they have acquired in the course of their extended practice in teaching. It is true also that many of the best laid preconceived plans go wrong, and that hasty modifications of them and extemporisations have to be made in the course of the teaching concerned. The beginner is, however, advised that even so it is quite unsafe to neglect preparations. He may have a flair for impromptu teaching, but this kind of teaching, without the background of an extensive practical experience, is prone to let the practitioner down very badly. The modifications of original plans which of necessity arise during the conduct of classroom activities, usually call for all the initiative and quick thinking which the teacher can exercise. It is therefore advisable to have some definite plan of action, previously prepared, for all lessons which one is called upon to conduct.

The teacher is strongly advised, at least in the early stages, to make a written note of his preparation. Memory sometimes proves a treacherous servant, especially when his attention is divided, as it often is during teaching, among such things as A's conduct in the back row, the actual manipulation of apparatus, B's extraordinary answer to the last question, C's failure to give any answer to it, etc. It is advisable, however, not to teach from notes. Excessive reliance upon these may undermine the teacher's

confidence so that he can never do without them. If, however, the teacher has occasion while teaching to refer to his notes, it is better for him to do so openly rather than to take a surreptitious peek at them. He loses nothing in the eyes of the children by the former method, whereas by the second he is likely to be misjudged by his pupils. Apart, however, from the value of the written note as an *aide-memoire*, the actual writing of the note is of considerable value to the teacher. Writing helps to clarify thought, and the concentration which is necessary sometimes suggests points of view and alternative methods of approach which less definite preparation would fail to indicate. It must be emphasised, however, that too frequently beginners show an undue haste to get their preparation "written up" in their notebooks. Although the writing of notes has the values which are here claimed for it, the actual writing is really in most cases the final stage of the preparation. A good deal of reflection and hard thinking about ways and means are essential preliminaries. The writer hesitates to make any definite recommendations about the form which written notes should take or about the fullness of these notes. Some suggestions are given later in this chapter for the benefit of those who have not previously written teaching notes. There are more ways than one of writing very efficient teaching notes, and those who have had extended experience of the training of teachers are not of one mind upon the matter. Ultimately the teacher should work out for himself the best way of recording his preparation to serve his own purposes.

General Considerations.—The planning of a course of lessons, or of a single lesson, is comparable in many respects to the way in which one tackles a plan for any other human activity, whether it is a simple one like crossing a busy thoroughfare, or a complicated one like drawing up the plans for the building of a new town. To begin with, the activity is planned to serve a particular purpose, e.g. one crosses a road like the proverbial chicken "to get to the other side," and a town is built to serve a particular need. The more complex the human activity, the more important the "purpose" or "intention" of it becomes, since it is likely to affect the plan very

materially. In teaching, all activities should be purposive and directed towards particular ends. Precious time and energy can be so easily wasted or dissipated unless the teacher has very clear ideas upon the purpose of the work he is doing. He is advised therefore to formulate this very clearly in his own mind at the very beginning. He then has a target or objective towards which all his efforts can be directed. If this is well chosen he will also have a standard by which he can measure the effectiveness of his work.

The next step is to make an appreciation of the position, e.g. the pedestrian crossing a road examines the width of the road to be crossed, the streams of traffic, the relative speeds of oncoming vehicles, any barriers or obstructions to be circumvented, and so on. Every factor which affects the drawing up of his plan of action is examined, and an evaluation of it is made from the point of view of how it will affect any action which he may subsequently take. The teacher must make the same kind of appreciation. Among the many factors which he will take into consideration are :—

(i) All the relevant known facts about the capacities, interests, and attainments of the pupils which he has acquired as a result of the study suggested in Chapter IV.

(ii) How far their previous work has prepared the pupils for the new advance, i.e. he should examine the new knowledge or skill to be presented in the light of his pupils' background.

(iii) What the new activity will lead to, i.e. the part which it plays in a greater whole. Where future progress can be facilitated, without sacrificing the requirements of immediate needs which should always have "No. 1 priority" in teaching, every advantage should be taken of any possibilities which offer.

(iv) The facilities at his disposal. For example, it may be that a particular piece of teaching could best be effected by the aid of especially suitable illustrative material such as a gramophone record, a special picture, or a particular film. If, however, these

facilities are lacking, one must subsequently make one's plans accordingly and make use of "second best" material. Frequently the time spent upon considering this matter well repays the teacher. When looked for, facilities can often be "discovered" which escape the casual observer, e.g. sets of books stored away, pictures hanging in out of the way places, a cinema projector which may be borrowed, places of special though possibly limited historical and geographical interest in the school neighbourhood, local features of a useful character with which the children are perfectly familiar in their out of school lives and so on. Some teachers develop "a nose" for discovering many facilities in the school and in the neighbourhood nearby which miss their less observant colleagues.

The third step in preparation is to draw up a plan of action which, in the view of the teacher, is most likely to "hit the target" selected in the first step, all the relevant factors of the appreciation being considered. It is really not quite sufficient to find *a* plan. Rather does one try to find *the best* plan to fit all the known circumstances. In this step one is bound to be influenced by personal observation and by what one has known or seen other teachers do in comparable conditions. The teacher must, however, assure himself, if he decides to make an imitative approach, that the conditions are comparable and that there are no significant variations which are likely to upset matters. For example, the way in which Mr. "X" dealt with the Industrial Revolution when the teacher was in the Vth Form in a grammar school may not, even in a very simplified version, be quite a suitable approach to this topic for thirteen-year-old "B" stream pupils of a modern secondary school. Most plans which are imitative reproductions of the work of other teachers usually need considerable remodelling when applied to different teaching conditions.

In seeking a plan which is likely to be effective the teacher should always consider the possibilities of alternative plans. There are usually several ways of doing most things in teaching and the best

plan may not always be the most obvious one. A few mental rehearsals of a lesson, according to different plans, in which the teacher tries to foresee what will happen, to anticipate difficulties, and to evaluate the respective merits of the several proposals, are frequently very helpful in coming to a final decision.

The last step will be the working out of the selected plan in detail with the administrative items noted and checked. It is at this stage that the actual writing of a note, if undertaken at all, will be of most use to the teacher in carrying out the general method suggested here for preparation for teaching.

PREPARING COURSES OF LESSONS

We have already noted that coherence in teaching is essential if the pupils are to receive the full values from what they do in schools, and that series of isolated experiences, however interesting and useful they may be in themselves, are not as valuable as those which conform to a co-ordinated plan. The teacher therefore is urged to think of the method-unit (see p. 97) rather than the content of the single time-table lesson period as the determining teaching unit. Frequently this will be something which can be dealt with in a single period or even within part of a period. If its connection with back work is maintained, and its bearing on what is to come is borne in mind, the teaching can be quite effective. But even so, in some way or other it is bound to form a sub-unit of a larger whole as part of a course of lessons which is likely to cover a number of time-table periods. These courses should be planned at the beginning, so that the correct sequence of activities can be maintained and the best use made of the facilities at the teacher's disposal. If this is not done it is extremely difficult to keep the balance of these activities. One may find that some parts receive undue emphasis while other quite important sections have to be treated in a somewhat sketchy manner. The plan which the teacher draws up is, of course, quite tentative. When he comes to put it into operation he may have occasion to make considerable modifications in the light of the way in which the

teaching progresses. But some plan of action, drawn up at the commencement of the course, is advisable to avoid the lack of balance which we have mentioned, and to secure that the essential purpose of that course is served. There is less danger then of the teaching pursuing unprofitable side-tracks and of its involving a waste of valuable time.

The exact lay-out of a course will largely depend upon the nature of the activities and experiences which are involved. If one is dealing with the development of knowledge, the four steps indicated in Chapter VII are a useful guide to the general shape which the plan may take. If the work in the main involves the acquisition of skill, the suggestions offered in Chapters V and VI will prove useful general guides provided that they are adapted to meet particular circumstances. The aim will be so to arrange the several steps that there is a progressive development of these skills into an integrated system. Each sub-unit should be taught so that it fits into the whole pattern of the skill when it is mastered. A simple example will illustrate this. Very frequently beginners try to teach the whole of a process like subtraction of money in one teaching step. In all probability the children will have done addition before this new advance is contemplated. Relying upon their familiarity with "reductions" through the previous work, the teacher demonstrates with suitable examples how to subtract sums of money from other sums involving pounds, shillings, pence, and possibly farthings as well. Good "A" stream classes can do quite well by this method. On the other hand, the experience of many teachers indicates that with the "average" child it is better to break the skill up into lesser units so that there is less new work at each step for the pupil to tackle. Subtraction involving shillings and pence is dealt with first and mastered by practice, then pounds and shillings are similarly treated. Finally, pounds, shillings, and pence are brought together and, at the very end (if at all), the farthings are introduced to, and dealt with by the pupils. The teacher's preparation of a course of this kind will be directed towards the determination of a plan whereby the special capacities of the children with whom he is

dealing are catered for, and the work is sectionalised into readily "digested" and progressively "nourishing" portions.

In dealing with a course of lessons which is mainly concerned with the development of knowledge, similar considerations to the foregoing will help the teacher to determine before he begins the actual teaching the following points :—

- (i) The general lines which he intends to follow in the treatment of the topic.
- (ii) The sections into which he subdivides the work.
- (iii) The time to be allocated to these sections.
- (iv) The general lay-out of the activities which the children themselves will carry out and of those in which he, as teacher, will be playing the main rôle.

An example will serve to illustrate this kind of planning. Let us assume that we are teaching an eleven-year-old "A" class of a modern secondary school. As part of a general science course, arranged on the "topic" method, we are required to give a course of six lessons of 45 minutes each (two per week on each of two separate days) upon "Oxygen." Inspection of the syllabus reveals that this topic is part of a wider topic, viz. "Breathing in plants and animals." The work immediately preceding the section with which we are concerned was (i) the ocean of air in which we live ; (ii) air pressure, pumps, etc. ; (iii) carbon-dioxide and the breathing and feeding of plants.

The first step will be to fix an objective for the teaching. The school science course has the "biological outlook" so our purpose is revealed as something of the following nature :—

To deal with the topic so as to bring out the significance of oxygen in the breathing and feeding of plants and animals.

The appreciation involves a consideration of all the factors to which we have made reference in the preceding section of this chapter. Let us assume that this has been made and that a plan for the course has been determined. If a written note of this is decided upon, and the teacher is well advised to make a written

record, the following would be sufficient for most practical purposes :—

Period 1. Air is necessary for burning.

Problem approach : What happens when things burn ?

Discussion followed by demonstration experiments showing air necessary for ordinary burning.

Problems to be left with pupils : Bellows and forced draughts.

Period 2. Burning increases weight.

Discussion of problems left from period 1.

New problem : What is burning ? The old theory of "fire stuff."

Group experiments by pupils (equipoise method) to discover whether magnesium loses "fire stuff" on burning.

Problem : Where does the additional weight come from ?

Period 3. Part only of air used in burning.

Demonstration experiments, (a) candle and (b) phosphorus in bell jar, to answer outstanding problem of 2.

Link (a) with last term's work on carbon-dioxide, lead to idea that part only of air is used in burning (b).

Period 4. Oxygen gas.

Refer to problem proposed at commencement of the course, and formulate argument so far. Name gas concerned.

Demonstrate properties with cylinder of gas, bringing out the formation of common oxides, cf. breathing.

(Set up pondweed experiment after this period for use in period 6.)

Period 5. Oxygen and breathing.

Oral lesson and discussion on the importance of oxygen in the breathing of plants and animals.

Problem : Why does not all the oxygen disappear from the earth with so much breathing and burning going on ?

Period 6. Conclusion and summary.

Answer to last problem by reference to experiment on oxygen production by feeding plant.

Pupil to give lecturette on Priestley's discovery of oxygen and Lavoisier's work.

Mercuric oxide demonstration to illustrate above.

Revision of course by completion test to form notebook summary.

Future work.—Oxidation of foodstuffs and connection between breathing and feeding ; energy from food and burning fuels.

This general plan for the course will enable the teacher to start out upon it with some idea of the preparation of apparatus, etc., which will be required for the several periods. He can thus keep a controlling hand upon the whole activity and ensure that there is a minimum of waste of time and effort through difficulties which he might have been able to avoid. In conclusion, it may be pointed out that the course provides a fair measure of practical activities through which the pupils themselves are able to make substantial contributions to its development.

DETAILED PREPARATION

In making his plans for the course the teacher will draw up, as we have indicated above, a general scheme. Within that scheme there will be sub-units, which may quite well be looked upon as method-units within themselves. Sometimes these will form the content of a whole period, while at other times they may overrun into two or more periods. For example, the treatment of topics like dairy farming in Ireland, the introduction of the use of the decimal point, or a relatively short poem, may well be such as to occupy but one whole period of the time-table. It will, however, take more than one period to deal with a topic such as the multiplication of decimals where the Practice step is a relatively protracted one, or with the Industrial Revolution where the content is simply too much, however it is treated, for it to be effectively dealt with during a single lesson period of normal length. The teacher will necessarily have these facts in mind when making his plans, especially when determining the ways in which he intends to carry through the steps applicable to the kind of teaching he is conducting (see Chs. V, VI, VII and VIII). While therefore he must think of the method-unit as a teaching "whole" he will be concerned practically with the lay-out for, and the most profitable use of, each individual lesson period as it is delimited in the time-table. Whatever one may think of time-tables, and of the restrictions which they involve, the majority of teachers have perforce to work with them under present conditions and to make the best use of the facilities as they find them (cf. p. 150).

Looked at in the simplest way, each lesson must have a beginning, a middle and an end, since the teacher must start up the activity, carry on with it, and conclude it. It should therefore be planned with these three aspects in mind even if, as we have said before, the teacher is concerned with a section of a larger teaching unit. In making his own preparations the teacher should make a preliminary survey of purpose, appreciation and plan as indicated at the beginning of this chapter. He will then go on to the consideration of the details of what he intends to do within the particular period concerned.

Aim.—To begin with every lesson should have some specific aim in view. This will be determined in its relationship to any wider purpose which may be involved. The teacher is advised to think out and formulate this “aim,” “purpose,” “intention,” or whatever one chooses to call it. A good plan in the early stages is for the teacher to record it in writing for reasons which we have already given. It should be a plain, straightforward statement of what he wants to do in a particular lesson, e.g. “To practise the pupils in reading aloud,” “To help pupils to appreciate ‘The Ships,’ by J. J. Bell,” “To teach the relationship between the diameter and the circumference of the circle.” It should be noted that the statement concerns the immediate purpose of the particular piece of teaching concerned. Generalisations such as “To inculcate a love of good literature,” or “To help children to appreciate good music,” praiseworthy as they may be as general educational aims, should be avoided in these statements, though borne in mind by the teacher as wider objectives underlying his practice.

Introduction.—Having determined his aim, within the scope of a particular lesson period, the teacher should now give his attention to the actual start of the activity. For convenience we may call this the Introduction, but the teacher should take care not to confuse it with the Preparation step to which we have made frequent reference in previous chapters. Preparation refers to a complete method-unit, whereas the term Introduction, as we are using it here, refers specifically to the actual starting up of the activity designed for a particular lesson period. An Introduction may

involve a complete Preparation step but frequently it will not do so. For example, when he is teaching skills the lesson which the teacher is preparing may be devoted exclusively to a Practice step in which the children are practising some skill or skills the Preparation and Presentation of which have been effected in a previous lesson or series of lessons. This situation frequently occurs in the teaching of literary and arithmetical skills in which whole periods, during which no new advance is made, are occupied in the consolidation of ground already covered and in the perfection of the skills involved. In the development of knowledge, moreover, a whole period may be devoted to continuing or concluding a Presentation already commenced in a previous lesson, while at the end of a series of lessons a complete period may sometimes quite conveniently be devoted to a review of the knowledge already gained in the course with a view to its organisation into some systematic form, i.e. the period is concerned with the Generalisation step of the general method.

In thinking of his Introduction, therefore, the teacher will be concerned with the most efficient and economic way of getting his pupils on to the main business in hand, whatever its nature, during a particular time-table period. With this end in view he should avoid rambling, vague and indefinite Introductions which serve little or no useful purpose and should aim to get to the point by the shortest possible route consistent with efficiency. This requires very careful and definite planning so that the teacher will know exactly how he intends to proceed when faced with the actual teaching situation. For example, if he intends to pick up the threads of some previous lesson by means of a few recapitulatory questions it is often very valuable for him to think out, and possibly write down, the actual questions which he intends to use. If he is proposing to use a question of the exploratory type to initiate some new line of enquiry, or to propose a problem for the same purpose, he should think out the exact terms of the question or problem. He should also endeavour to anticipate, as far as it is humanly possible to do so, the answers which he is likely to get from the pupils, and the way in which he intends to use them to attain his purpose, which is to capture the interests of the pupils and to

give them some idea of the immediate objectives of the work which he is calling upon them to undertake.

In many activities it is often the best plan to make a plain, straightforward, businesslike statement of what has to be done and to get straight on with the development of the activity, e.g. "In this lesson you will complete exercise number 'n' in your arithmetic books. Take them out and go on with your work. Corrections will be made in the usual manner. Any questions?" This should be quite sufficient in a class in which there is a well-established routine for this kind of work. In cases like this the Introduction can be effected expeditiously so that the pupils know exactly what is required of them, and they can then proceed with the minimum waste of time and energy to the main business of the period. Whatever method the teacher proposes to adopt, however, when starting up a period, very careful and definite planning usually repays well the time spent upon it. A good start to any lesson is a very great help, while a poor start often sets up conditions which even the most skilled teachers may have difficulties with as the lesson proceeds.

Development.—In the "Development," as we may quite conveniently call the middle or main part of the activity, whatever its character may be, the teacher should have a clear and definite idea of what he intends the pupils to be doing. Any note which he may make should indicate precisely how he intends to proceed in the conduct of the lesson, i.e. the stress should be upon the actual methods to be employed rather than upon the material to be used. Too frequently inexperienced teachers "get up" a lesson so that they themselves know the facts and relationships involved without their having thought out clearly exactly how they are going to bring these home to the pupils. It is one thing, for example, for the teacher to realise in teaching science that the strength of an electric current varies directly with the electro-motive force and inversely as the resistance in the circuit. It is, however, a different matter to get the pupils in the class to "see" exactly what this means in terms of ideas based upon clearly apprehended relationships. In anticipating difficulties which he thinks the children

may find in any particular section of the work the teacher should also make up his mind as to how he intends to help the children solve these difficulties. For example, phrases like Drinkwater's, "Rapt on his pinnacle of song," and "Those are celestial chimney pots," will strike the teacher as ones requiring special treatment in an appreciation lesson. He will require in his preparation, if this is to be effective, to think out exactly how he is to attempt to bring home to the pupils what the poet is trying to convey to his readers. This involves a definiteness in preparation which will test the teacher's skill and ingenuity. It will, moreover, depend upon his knowledge of children, and particularly of the ways in which their minds work. The dictionary is useful in many ways, but in the majority of cases something much more is involved than the mere presentation of a number of synonyms which, to the particular children concerned, may convey little more understanding than the original terms.

One of the main concerns of inexperienced teachers is often to provide themselves with enough material "to last out" the lesson. They naturally have a fear of "drying up" and not knowing what to get on with next. As a result beginners frequently attempt to cover too much ground. The scope of any lesson is determined by the interests and capacities of the pupils concerned. As a general rule, however, teachers are advised to concentrate in their teaching upon the really important steps and fundamental principles involved in any particular Development. If these are well established and properly appreciated by the learners, and if they are brought out in their proper perspective rather than lost amidst an overwhelming mass of material, the main purpose of the Development will have been achieved.

Too frequently lessons are planned to be "given" rather than "conducted" as an active learning process. The criterion of success is always to be found in the learner's side of this process, on the part the individual pupils themselves take in the activity concerned, and in what they get out of it of permanent value to themselves. In his preparation, therefore, the teacher should proceed with the pupils' viewpoint ever in front of him.

Conclusion.—Attention should always be given to the conclusion of a lesson. Too frequently lessons just “peter out.” The allocation of time to the several steps involved may have been faulty, distractions may have unexpectedly occurred, interest may have flagged, the work may have proved unsuitable, etc., but more often than not this collapse is the result of faulty preparation. The teacher should therefore always have some definite ideas upon the way in which he intends to bring any activity to a conclusion. He need not necessarily plan to “round off” every lesson so that it is complete in itself. This would be undesirable if the lesson is part of a clearly envisaged larger unit. In this case a “finish”, which is definitely seen by the pupils to be one which marks an incomplete stage, is desirable, e.g. “We have learnt so and so, but we still do not know what we set out to discover. There is more to come.” In cases like these, however, the very feeling of incompleteness is a suitable end to the immediate activity. It may lead to further individual work by pupils, to discussion, and directly or indirectly to the Introduction for the next period.

Other lessons can quite well be concluded so that they are suitably “rounded off,” and the progress made is checked or consolidated. There are many ways of doing this. The following are a few of them, suggested as possibilities in circumstances which lend themselves to the particular treatment involved :—

- (i) A summary account of the lesson. This comes best from the pupils themselves.
- (ii) The examination of a problem or puzzle situation arising out of the lesson, to be left for solution by the pupils before the next lesson.
- (iii) A statement of the work which will occupy the attention of the class in the next lesson.
- (iv) An appreciation of some of the work done during the lesson, e.g. the expression of opinions by the children of the aspects which interest them, of those in which they have least interest or which they found hardest, of the use which the pupils find for the knowledge gained and so on.

- (v) The marking and assessment of practice. This is especially applicable to the teaching of skills.
- (vi) Pupils' questions and discussion.
- (vii) The working of some exercises or applications.
- (viii) A test conducted orally or written.
- (ix) Collection and recording of the results of individual work, e.g. in science and in practical geography, mathematics, etc.
- (x) A notebook summary of the lesson or recording of the generalisation.

Administrative Details.—There is a further group of preparations to which the teacher's attention is directed when planning. This includes all the practical details which are essential to the successful conduct of the lesson. To enable him to assemble the material required before the lesson commences and so to avoid unprofitable interruptions of the course of the activities, he should note down all the illustrative material which he intends to employ, all the materials for writing, etc., which the pupils require, text-books, tests, models and the like which are to be used. A note of these, previously made, will enable him to have everything ready beforehand where it is wanted, so that he can give his undivided attention to the work in hand when the time comes.

WRITTEN NOTES OF LESSONS

It is obvious that as the teacher's training progresses, and as he gains experience, the form which his teaching notes will take correspondingly varies. To begin with he is recommended to make them fairly full for his own benefit. There is, however, no one best way of recording one's preparation. Teachers used to be given a pattern or model set of lesson notes to which they were required to adhere. This was quite consistent with the rigidity and the uniformity of teaching method which characterised the period. Nowadays it is customary to take a much more liberal view of this aspect of training. The essential thing in preparation is for the teacher to get ready a plan of action which is clear, definite, and detailed, so that the proposals are well defined,

both with regard to their content and to the appropriate teaching methods. A full written note will help others to criticise him and to advise him upon his teaching practice. Otherwise there is no particular virtue in recording anything beyond the barest details which will serve him to clarify his ideas and to refresh his memory immediately before commencing, or possibly to supply him with a reference or two during the actual lesson. Quality rather than quantity therefore should be the objective sought in writing these notes.

The teacher will find it useful to adopt the headings which are suggested in the previous section of this chapter, viz. *Aim (or Purpose or Intention), Introduction, Development and Conclusion*, and to add a fifth—*Notes*—in which can be recorded any administrative details which he wishes to remember, copies of tests, black-board summary, etc. As a result of suggestions originating from his own students, the writer has found it very valuable for them to include in this section an analysis of the activities involved in the lesson according to whether they concern primarily the teacher or the children. This is admittedly an unsatisfactory dichotomy since every activity should be considered as a pupil-activity even if it only involves the pupils' listening to the teacher or to a broadcast. However, the students themselves have found this analysis useful to them in estimating the calls they make upon the pupils' active co-operation and in keeping themselves "in hand." The suggestion is offered here for adoption by any reader who thinks he can find a use for it.

Some examples of written notes of lessons are given below. They are given here very fully and, as we have already indicated, the teacher's working notes will not, after the earliest stages of his practice, be nearly as full as these. Again the writer would emphasise that these are merely suggestions and *not* model notes. It is hoped that they will be useful for teachers who have not previously written notes of lessons. They are intended to indicate (1) careful planning; (2) a suggested arrangement (by no means an inflexible one); and (3) methods of indicating in notes the procedures to be adopted.

A. First Lesson on Division of Decimals

"A" Class. Average age : 10 + (Primary School).

PREVIOUS KNOWLEDGE. Addition, Subtraction and Multiplication of Decimals.

AIM. To teach division of decimals by whole numbers.

INTRODUCTION (10 mins.).

(a) *Mental test.* Dictated orally by teacher, pupils to write down answers.

- | | |
|---|-------------|
| 1. How many 10ths in $\frac{1}{2}$ in. ? | (5) |
| 2. How many $\frac{1}{4}$ s of an inch in 0.75 in. ? | (3) |
| 3. 5×1.5 in. | (7.5 in.) |
| 4. $2 \times \pounds 1.5$. | (\pounds 3) |
| 5. 6.5 in. - 2.25 in. | (4.25 in.) |
| 6. 2.1 miles + 3.9 miles. | (6 miles) |
| 7. I have \pounds 0.5 and spend 1s. How many shillings left ? | (9) |
| 8. How many oz. in 0.5 lb. + 0.25 lb. ? | (12) |
| 9. How many shillings in \pounds 1.5 + \pounds 2.1 ? | (72) |
| 10. 7.5 in. - 6.9 in. | (0.6 in.) |

Oral correction of answers at completion.

(b) *Practical Problem.* Stated by teacher.

"To economise in paper we are going to divide a page in the arithmetic exercise books into five columns of equal width for our mental tests. How shall we do it ?"

DEVELOPMENT (30 mins.).

Step I. Solution of problem.

Pupils will measure width of page, using rulers, and make suggestions. These will be considered. The problem to be stated in arithmetical terms and written on blackboard.

$$6.5 \text{ in.} \div 5$$

i.e. 65 tenths of an inch $\div 5$

$$\begin{array}{r} 5 \overline{)65} \\ \underline{5} \\ 13 \end{array}$$

13 tenths of an inch = 1.3 in.

Pupils will now actually rule out the page as required.

(15 mins.).

Step II. Establish the general case.

With help of pupils and by reference to above, teacher will deal with position of point, using method of preliminary check.
Setting out on blackboard

$$\begin{array}{r} 6.5 \text{ in.} \div 5 \\ 5 \overline{) 6.5} \text{ in.} \\ \underline{1.3} \text{ in.} \end{array}$$

A pupil will work on blackboard $4.8 \div 3$, $1.25 \div 5$.
Formulate the general rule and show by the three examples the method of positioning the decimal point.

Step III. Practice by pupils.

Pupils will work in books the following :

$$7.5 \div 3, \quad 18.5 \div 5, \quad 99 \div 6, \quad 15 \div 4.$$

Numbers 3 and 4 will occasion difficulty to some pupils.
This leads to Step IV.

Step IV. Blackboard demonstration for those needing it of extension to second place of decimals.

Step V. Further practice by pupils :—

$$7.55 \div 5, \quad 18.3 \div 6, \quad 99 \div 12, \quad 8.5 \div 8.$$

(15 mins.).

CONCLUSION (5 mins.).

Correction of common mistakes by teacher. Questions to lead pupils to suggest next step, viz. where decimals are divided by decimals.

NOTES.

- (a) *Teacher's part.* Test and correction, blackboard demonstration, group teaching (iv), conclusion.
Pupils' part. Practical measurement, drawing, working of exercises.
- (b) *Apparatus, etc.* Rulers, pencils, exercise books.
- (c) *Blackboard.* Notes as required for demonstrations (see above). Exercises for children's work to be written on blackboard as lesson progresses.

B. Second Lesson of a Course on Oxygen

"B" Class. Average age : 12 + (Modern Secondary School).

PREVIOUS KNOWLEDGE. Air is necessary for burning.

AIM. To teach that when things burn in air they increase in weight.

INTRODUCTION (5 mins.).

Teacher will question pupils on last lesson, e.g. What did we do ?
What did the experiment show ? Teacher will follow with a short account of the old theory of "fire stuff" ("phlogiston" will *not* be mentioned) and its effects on burning. If this is true what should happen to the weight of substances which burn and lose their "fire stuff ?"

Statement of this lesson's practical work, viz. "To find out if magnesium loses in weight when burnt."

DEVELOPMENT (35 mins.).

Step I. Teacher will demonstrate to pupils

- (i) How to carry out method of equipoise ;
- (ii) How to burn magnesium without losing any products of burning.

Instructions will be given to pupils for their practical work and noted on blackboard, viz.

- (1) equipoise crucible and contents ;
- (2) burn contents ;
- (3) allow to cool ;
- (4) test for loss of weight.

Teacher will emphasise all precautions and question children for comprehension of instructions.

Step II. Children perform practical work in groups of three pupils each, teacher checking and questioning individuals and groups during the experiment.

Step III. Practical work to be followed by collection of results. Discussion to lead up to formulation—

"When magnesium burns it does *not* lose weight. It actually increases in weight."

Teacher will now *tell* children that this is so with all substances which burn in air—dealing with difficulties experienced, e.g. that coal "increases" in weight when burnt.

CONCLUSION (5 mins.).

Children to make short note of results.

Formulation by children, with teacher's help, of problem for further investigation, viz.

"Where does the additional weight come from?"

NOTES.

(a) *Teacher's part.*

- (i) Introduction to new work.
- (ii) Demonstration in Step I.
- (iii) Supervision of children's practical work.
- (iv) Collection and formulation of results.

Pupils' part.

- (1) Contribution to introduction.
- (2) Conduct of experiment.
- (3) Discussion or results, etc.
- (4) Notes. (Times indicated above.)

(b) *Apparatus.*

Balances (1 essential for each group).

(Magnesium ; crucibles (with lids), tongs.

Notebooks for children.

(c) *Blackboard.* Notes will include

- (i) Instructions ; see Step I, 1-4 inclusive.
- (ii) Formulation of statement of results ; see Step III.

C. English Literature

"A" Class. Average age : 13 + (Modern Secondary School).

PREVIOUS WORK. Appreciation of "Old Ironsides," by O. W. Holmes.

AIM. To attempt an appreciation of "The Ships," by J. J. Bell.

INTRODUCTION (6 mins.).

1. Connection with last lesson.

Oral questioning by teacher, e.g.

"What was the title of the poem?" "What did it tell us of the old ship?" "What would have been a better fate for the ship?" "Why?"

2. *Statement by teacher.*

"To-day we are going to read another poem of the sea, 'The Ships,' by J. J. Bell."

Silent reading by class.

DEVELOPMENT (30 mins.).

The teacher will read the poem aloud verse by verse, after each verse discussing (a) the matter; (b) word pictures and language.

1. Who is speaking to us in the poem? How do we know from the first line? What sort of ships has he seen? Has he travelled much? Which are the "mighty ships?" "the little ships?" "the speedy?" "the slow?" How does he console himself? Why does the sight of the ships make him want to go round the world?

2. Why are the liners "swift and stately?" What is the effect of "how they run without a rest?" What sort of ships are three-masters? Teacher here shows illustrations. How have they "touched the east?" What did they then do? What does that remind you of? What are the monster burden-bearers? What is the force of "plunged?" What sort of ships have the first two verses told us of? What is the old man's thought?

3. What sort of ships are mentioned in this verse? How do battle-ships "loom" as dark as night? Why are they "dark?" How is the destroyer described? and how the scout? Why? How does the man connect these with his desire to sail round the world? How can a ship "snarl?"

4. Why doesn't the yacht leave the firth? Where are "the richer feasts?"

5. What is a tramp? How is it described? What is the effect of "hammered?" What does the poet compare it to? How will it go through the sea? What is a brigantine? How does it "trap the lightest breeze?" Why "trap?" Why must we not despise those little ships?

6 and 7. Where has the old man learnt about the world? What persists in his mind? What consolation does he get? What kind of ships are always appearing? Does he give up hope completely? What do other people think of him?

CONCLUSION (9 mins.).

- (i) Teacher to read poem through to class.
- (ii) Questions from the class.
- (iii) Comparisons invited with other poems, e.g. Masfield's "Cargo," with quotations, if possible, by pupils.
- (iv) Selected readers to make final reading of poem.

NOTES.

(a) Teacher's part.

- (i) Introductory questioning.
- (ii) Reading and discussion leader.
- (iii) Answering pupils' questions.

Pupils' part.

- (i) Discussion and answers to questions.
 - (ii) Reading of poem.
 - (iii) Asking of questions and quotations in comparisons (conclusion).
- (b) Apparatus.* Copies of anthology used by class. Cyclostyled copies of "The Ships." Pictures of windjammer, "The Young Australian."

CHARACTER DEVELOPMENT AND DISCIPLINE

It is a commonplace in educational literature, and in discussions upon education, to assume that the all-important aim in a child's upbringing is the development of his character. For example, we hear and read such statements as "What children *know* is relatively unimportant. What kind of people they become is the all-important consideration," and "Education is what is left after you have forgotten everything you learnt at school." Although perhaps one cannot wholly agree with statements like the latter, if they are taken in their literal sense, the underlying implications are such as meet with general agreement. If, for example, the applications of teaching techniques such as we have suggested in the preceding chapters of this book merely result in a boy's knowledge, gained in a school science course, being directed towards helping him to rob gas meters and pick locks, or if his acquired muscular skill is merely employed in "cat-burgling" exploits, one must admit that this education for some reason or other is a failure.¹ Education must therefore inevitably concern itself with moral considerations and with the individual pupil's conduct.

Character is one of those terms which somehow or other defy satisfactory definition. Yet everyone knows what is meant by the term when it is applied to a human being and when we talk about a pupil's character, we refer to the kind of person that he really is. Our judgment of this is based upon the ways in which he behaves in different circumstances together with our view of his motives for so behaving. This last factor is most important. A child who behaves himself well simply because he is "scared stiff" of misbehaving, cannot be said to have a "good" character. Too frequently teachers and parents make misjudgments of the

¹ "An educated villain has all the more tools at command with which to do evil."

—C. H. Spurgeon: *Salt Cellars*.

essential characters of their charges by relying upon their observation of the overt behaviour of the latter without making, as far as it is possible to do so, an analysis of the underlying motives for that behaviour. The complexity of the problem of character development is here revealed. It concerns the inner springs of human conduct, the sources of children's motivations in all their perplexing and intricate modes of functioning.

The teacher may well ask whether there is a technique for the development of character as there are techniques for developing children's knowledge and skill. The answer is that practically everyone who writes and thinks upon education is ready to give advice upon this matter since everyone, if he has anything to do with children, is concerned with it. Parents of all kinds, from those who are just seeking to protect themselves from young "nuisances" about the house to those who are genuinely concerned with developing the characters of their children, and teachers of all types, ranging from the practitioner who merely wants a hundred per cent. "passes" in the examination to those teachers who take most seriously their responsibilities for the full development of their pupils are inescapably concerned with human motivations, and each of them forms his own idea of the ways in which children should be "brought up." The teacher therefore will be able to obtain plenty of advice upon the subject though a great deal of it may be somewhat conflicting. To begin with, there is not really a very clear consensus of opinion as to what constitutes a "fine" or "good" character. What one person might rank high in the scale of human virtues would possibly be considered by another as a mere attribute of "priggishness." On the other hand, there is a rather nebulous but nevertheless commonly accepted scale by which children are generally judged in respect at least of their moral characters. All will agree that children should be brought up to be honest and truthful in their dealings, that they should show regard for and be magnanimous towards their weaker or less fortunate brothers, that they should be sociable in the best sense of the term, and that during the course of their education they should develop the moral courage to stand

up for what they believe to be right, and to conduct their lives according to praiseworthy ideals in spite of any difficulties which they may encounter in so doing. To this extent therefore, and perhaps it is best left in these general terms, we can see the purpose of the educational processes which are involved.

The chief difficulties arise, however, in discovering the best techniques to adopt to serve the purpose we have indicated here. The literature upon the subject is voluminous. Ever since man thought in terms of character development writers have treated the topic in a somewhat controversial fashion. Modern educational literature shows the same characteristic divergency of views. For example, one finds the view of Rousseau, that everything (the child included) is good as it comes from the hands of the Creator, and that only man and society are the corrupting influences, exhibited with variations in a modern form in the writings of Bertrand Russell, A. S. Neill and Miss Ethel Mannin. These writers have an implicit faith in the inborn "goodness" of child nature and advocate a "natural" education which more or less leaves that goodness free play to work out the child's salvation. On the other hand, the more conventional school of thought suggests that although children do perhaps have a general credit balance of "good" impulses, they also possess other impulses of a different nature which necessitate our giving them some definite assistance in their moral development. For example, Hughes and Hughes, in *Learning and Teaching*, state, "The child is neither moral nor immoral; he is a creature of impulse."¹ This obviously places considerable responsibilities on his parents and teachers for helping him to control those impulses. Sir T. Percy Nunn² asserts that "a child cannot at birth be charged with the self-responsibility which he may ultimately claim and must ultimately bear." This author goes further to show that "Family and school are institutions whose existence implies a joint responsibility in which parents and teachers have a share—preponderating at first, then decreasing as the years pass and the lines of the child's

¹ *Learning and Teaching*, p. 175.

² *Education: Its Data and First Principles* (1930 edition), p. 6.

individuality form and harden. In the moral sphere the main duty of parents and teachers is to see that the little world in which the child grows up is as rich as may be in those elements that go to the fashioning of the better types of individuality, and that other elements are excluded." At the other end of the scale one can still find the persons who will quote with conviction the proverb: "Bring up the child in the way he should go," and who, moreover, constitute themselves the sole arbiters of what that way should be. Here then we see three typical views, the first regarding character development as involving free and unrestricted growth, the second as a process needing guidance and assistance, and the third as a moulding to a particular pattern.

When one comes to the practical problems which are involved in actual classroom practice the many contributions of the psychologists are helpful, up to a point. Without doubt a great deal more is now known about human motivations, their origins, and their development, than was known to our professional predecessors of a few generations ago. Yet even in this field there is by no means perfect agreement. In the pages of McDougall's works one finds a scheme for emotional development of architectural simplicity which has been subjected to considerable criticism by other psychologists. The works of the psycho-analytical school¹ are within limits revealing and valuable to the teacher. These again have been subjected to criticism by other schools of psychologists and there is always the danger that the inexperienced may, after studying them, be in a position of one of the writer's own students who confessed that he was almost afraid "to order any child to do anything at all in school," for fear he should do something damaging to that child's emotional life. Perhaps the most useful contribution for the beginner is Professor Cyril Burt's excellent book, *The Young Delinquent*. Here one can see from a complete scientific study of delinquency, all the factors which go towards developing bad characters. It is com-

¹ A very useful, straightforward, interesting account of the principles of psycho-analysis appears in Geraldine Coster's excellent little book: *Psycho-Analysis For Normal People* (Oxford University Press), 1926.

paratively easy from these to get a clear idea of the environmental influences which should help in healthy character development.

From what has been said so far in this chapter the reader will see that the whole subject of character development is bristling with difficulties and that it involves considerations upon which hasty judgments would be unwise. These and related problems have baffled man's best intentioned efforts to solve them for thousands of years so that one cannot expect a solution to be produced to order. But the teacher has to do something about it, very early on in his practice, and he cannot wait for the results of an extensive study before coming to some conclusion about his technique. The writer therefore, in all humility, puts forward the suggestions which follow as being likely, in the earliest stages, to assist the teacher practically in tackling this particular problem.

MORAL INSTRUCTION

In the course of a short sociological study,¹ Sir Percy Nunn makes the statement "that moral instruction is useless unless it is based on the actual social experiences of boys and girls, and helps them to solve the problems of conduct their experience presents." This appears to offer the key to the technique which is involved, not only in the development of moral character, but also in all other aspects of character training. It will be seen, moreover, that the view of human nature and of its development which has been presented in this book is strictly in accord with this fundamental principle. We have already noted that learning anything at all is a matter of the development through *experience* of the inborn patterns of behaviour which children possess. The problem therefore resolves itself into a search for the kind of experiences which will bring about the development which is indicated in our purpose and for the most effective ways in which a teacher can conduct those experiences.

We have already seen how, in the early stages, children's instinctive actions are modified as the result of their experiences. As their actions bring pleasurable or painful results so they modify

¹ *Education: Its Data and First Principles*, p. 177.

their conduct accordingly. At the same time their emotional patterns develop, likes and dislikes are formed, and their attitudes to things, persons, and situations, are correspondingly modified (see pp. 40-41). The pleasure-pain principle operates throughout life at all stages. As adults we are susceptible to it and, as a result of our experiences, we learn to avoid dangerous and unpleasant situations while establishing habits as a result of those ways of life which bring us pleasurable consequences. It follows therefore that teachers should utilise the pleasure-pain quality of experiences with children at all stages of development, wherever they can be certain that no harm of a serious nature is likely to come to the children concerned. A few tumbles in a suitably furnished nursery room, or some awkward and "impossible" situations arising from such actions as trying to reach inaccessible objects have educative values far exceeding the mere acquisition of knowledge. Some teachers of older children try to use the principle by allowing their pupils "to find their own way" in spite of a few cuts and bruises in craft-work and physical training. Experiences of this kind, however, need very careful handling if the desired effect is to be obtained. It is always as well for the teacher to be on the safe side provided that he does not "fuss" or "over-care" for his pupils. Excessive caution in games, for example, often leads to very half-hearted performances, with corresponding deficiency in their educational values, particularly in respect of character development.

The pleasure-pain principle is not, however, the only one operating, even in the development of young children's emotional patterns. The baby soon learns that although he may think he is to all intents and purposes the centre of the universe there are others who affect his life materially. His mother's attitude and, later, that of the rest of the family have a very important bearing upon his personal comfort and well-being. His interests and emotional development are caught up in the general family life as he takes the first steps in becoming socialised, i.e. in realising himself in relation to others. Here, however, he comes into contact with authority which expresses itself in terms of praise and blame,

and in punishments and rewards. These bring about not only important modifications in his overt behaviour, but also in his inner life, in his attitudes and in his likes and dislikes, in his "sentiments," as these are termed. The regulation which this authority involves is compensated for by the help and assistance which it provides him in attacking his general problem of living. When later he goes to school, he finds a comparable regulation in a much larger family in which mother and father give place to the teacher who nevertheless seems to occupy much the same position of authority over him as his parents, though she may exercise it differently. There are rules and regulations which are to be obeyed, and praise and blame as well as rewards and punishments are the consequences of successful conformity or failure to conform as the case may be. These consequences are, however, still the expression of the attitude of his elders, i.e. of authority, towards him.¹

Concurrently with the foregoing development he continues his socialisation by realising himself in relation to his fellows as a result of his gregarious impulses. He feels the need for making his ways square with theirs, experiences satisfaction when they meet with general approbation, dissatisfaction when they are frowned upon by the rest of the community. In other words he becomes susceptible to public opinion and learns to control his actions accordingly.

So far in the child's development we have noted three main influences at work, viz. (i) the pleasure-pain principle, (ii) the influence of authority in the form of the regulations of parents and teachers which he learns to respect, and (iii) the opinion of his fellows. These influences will be more or less effective throughout the whole of school life and possibly in modified forms throughout

¹ Many difficult cases occur in schools where the discipline of the home contrasts markedly with that of the school. Children, in their early days, develop their basic attitudes to authority through their family relationships. These tend to be carried over into the school and when, for example, there is a harsh and repressive home life, or easy, pampered home conditions, or worse still, when the home discipline is an unstable one vacillating from petting and indulgence to the hasty ill-tempered administration of rebuffs, all the conditions are present for emotional conflicts in the children concerned which are likely to lead to many serious disciplinary difficulties for the teacher.

the whole of life itself after he has left school. The stage of development to which they lead could not, however, be described as one in which a high level of conduct is to be achieved if its peak development is merely that at which behaviour is controlled by social approval or disapproval. There is, over and beyond this level, a stage of character development in which conduct is ruled by an ideal, a "life style" patterned according to convictions so strongly held that it may even initiate lines of action running counter to public opinion. It is this stage of development towards which educational efforts must ultimately be directed.

The account given above is but the barest outline of the development concerned. The teacher himself should fill in the details. Of the very many practical corollaries which are involved the following are perhaps among the more important :—

(i) Character development is a matter of helping children to control their instinctive impulses, i.e. it is essentially concerned with what is usually referred to as discipline.

(ii) While the teacher is, in a very real sense, the representative of authority in the classroom, his exercise of that authority should be directed towards helping and guiding the development of the pupils themselves, i.e. he should not uphold authority merely as authority, but rather he should maintain it as an educative force in that classroom.

(iii) Pupils should be given a progressively increasing share in social activities as they pass through the school, together with increasing facilities for shouldering social responsibilities. Children develop their characters most wholesomely when they actually live in a community which is organised upon healthy moral principles. By their active participation in such a life, e.g. in having practical opportunity to be charitable and rendering service in kind where it is required, in fulfilling their responsibilities for the conduct of social functions and suitable celebrations, and in taking a share in their own government, they should have the opportunity for developing desirable individual and social qualities. It is the teacher's responsibility to ensure that the "actual social experience" to which Nunn refers is provided for his pupils in ways such as

these and it is one of his most important functions in character development to set up conditions under which this practical social experience is of the healthiest possible nature.

(iv) The school should provide the inspiration for pupils to develop to the highest level of all, viz. that in which conduct is controlled by ideals, by a life style of a personal nature. The experiences which are appropriate to this development are to be found in religious and other observances, as well as in the pupils' contact with great and noble lives through the medium of literature and other human studies, e.g. through science in which the study of the work of men like Lister and Pasteur is pursued. This experience is important at all stages of school life, but its influence is most potent during the adolescent period, when the pupil's intense emotional life and his search for the meaning and purpose of human existence, render him particularly susceptible to suggestive influences of this character. The teacher's responsibility for the conduct of all observances and celebrations of a ritualistic character, whether they are relatively pretentious or simple, is a very serious one. Occasion and circumstances for celebrations should always be worthy ones and very carefully chosen. Sincerity should be the keynote of their conduct. A perfunctorily said grace, a gabbled prayer, a carelessly sung hymn do far more harm than good. As soon as these pass over to the realm of mere routine it were better that they should be omitted altogether. At least we should then know that no disservice had been rendered to the causes they are designed to further.

In the view taken here the outstanding quality of all the moral instruction and character development which are undertaken is that they should be real experiences of a practical character leading to positive forms of action on the part of the pupils. In accordance with the principles laid down earlier it should be the aim of the teacher to utilise the pupils' own energy in the service of their moral education. Too frequently children are informed what they *are not* to do, without being instructed as to what they *are* to do. If therefore the teacher, as the representative of authority, finds it necessary to issue any prohibitions he should endeavour

to frame them in a positive rather than in a negative form. "Don't talk !" can well give place to "Get on with your work quietly !" "Don't interfere with Mary's knitting !" to "Attend to your own work !" "Don't do that !" to "Do this !" and so on. Most troubles come from the damming of children's energies, and from restrictions in their natural activities which are denied to them for social reasons. Such restrictions are inevitable as part of the price we pay for the privilege of living and working together in a community. The teacher, however, will be wise to keep them to the barest possible minimum. Energy, moreover, is something which cannot for ever be dammed at the source. Sooner or later it either overflows into channels which may be quite undesirable, or it may remain hidden, apparently without any overt manifestation, to the detriment of the inner emotional life of the young person concerned. (See suggestions on p. 67.)

Praise and Blame.—In his allocation of praise and blame the teacher should exercise the greatest care. By an over use of these he may easily start a "policy of inflation" whereby the value of the "coinage" is debased until it becomes practically worthless. If praise is distributed with a lavish hand children tend to value it rather lightly, while some pupils may develop exaggerated ideas of their own worth. Ultimately the standard of effort which is called forth from the pupils tends to decline. Too frequent use of blame also tends to detract from its value as a corrective. The pupils complain, "He always grumbles at you whatever you do," so the bulk of them develop a defensive armour of indifference while some may be permanently discouraged. When blame is really called for, in respect of some relatively serious matter, the teacher finds that it has lost its effect.

Sarcasm is a "weapon" sometimes resorted to by teachers when a plain sincere statement of blame seems to be unavailing. The results are incalculable since the vulnerability of the victims is so variable. In many cases, however, a very undesirable relationship between the pupils and the teacher arises. A feeling of injustice is occasioned by the one-sided nature of the attack. The teacher appears to hold all the arms and ammunition by reason of his

position and his superior verbal facility. At any rate classroom relationships should never at any time become the sphere of a conflict between teacher and taught. Sarcasm therefore is best avoided when dealing with pupils, and reserved for use, if at all, in contests with others who more nearly approximate in status to the user than do pupils to teacher.

Rewards.—In the matter of rewards there is a considerable cleavage of opinion among practical teachers. The most enthusiastic sports' meetings at which the writer ever officiated were those of a large secondary school in which all material prizes or awards had been abolished. The members competed for "points" which were accredited to their respective school "houses." The aggregates determined the house which held the championship trophy till the next meeting. On the other hand, some teachers claim that this is not "true to life." Meritorious and successful effort deserves some tangible recognition. All the pupils naturally cannot be expected to receive the highest awards, therefore some of them must be taught to lose gracefully as part of the inevitable lesson of life. Very big issues are involved here which the teacher must face for himself. Competition can in many ways defeat its own ends. On the other hand, if it is wisely used it can be a valuable aid towards calling forth effort on the part of the pupils which might otherwise be lacking. If, however, the reader ever comes across a little community in which "mark grabbing" is a mania, or near mania, he will realise to what passes competition can bring a class.

Punishments.—It is in the natural course of events that misdemeanours will occur in school and the question of punishment has to be considered. It is obvious that as offences can be of all kinds, from relatively minor ones like persistent late coming to serious offences against the moral code like thieving and bullying, so the correctives will vary in severity and in accordance with the purposes they are intended to serve. There are several ways of looking at punishments, and they may quite well be classified according to their purposes.

First, there is the view which is particularly favoured by teachers

of young children. If one member of the class makes a nuisance of himself and interferes with the work or comfort of others he is segregated, cut off from the activities of the class, and condemned to inactivity for a period. It is the modern version of standing in the corner without the indignity attaching to being "pilloried" in public since he is usually sent to the back where no one can see him. The community is in a calm and unimpassioned way protected from disturbance. With older pupils, exclusion from work may not have quite such a powerful effect, and some teachers extend the exclusion to games and such privileges. One must be careful, however, lest the weight of the punishment far outweighs the "crime." If it involves a curtailment of normal health education then this form of punishment is very rarely if ever justified.

Secondly, there is the form of punishment designed to act as a deterrent to the rest of the class. The teacher "makes an example of X," to keep the rest of the alphabet on the "straight and narrow" path. As a practical expedient this is often quite effective in the case of routine misdemeanours, such as unpunctuality and disobedience, which are clearly against the interests of law and order in the class. If this punishment has the sanction of the rest of the class, and if it is not unreasonable in their eyes, it will probably have a salutary effect and be of general benefit. If "X" has, moreover, been duly warned, with the rest of his classmates, he himself has no reason to feel that he has been unjustly treated. If, however, he has been "picked upon" among a number of other offending pupils and selected for special treatment the effect upon him and upon the others is likely to be negative. Even adults sometimes feel aggrieved in such circumstances, e.g. when the last motorist in a long line of vehicles is hauled before the courts for exceeding the speed limit while others go scot free.

A third view of punishment is that which arises from a felt need to preserve the sanctity of the law. It is based upon the elementary principle of retributive justice that, where under certain specified conditions some "mischief" has been occasioned, "thou shalt give life for life, eye for eye, tooth for tooth, hand for hand, foot for foot, burning for burning, wound for wound, stripe for

stripe.”¹ Rarely does one see the occasion for such a view of punishment in a school. One might argue that if Sally pulls Jean’s hair then it would be quite just for the teacher to arrange the conditions under which Jean “gets her own back,” or possibly for the teacher to act as Jean’s agent and do it for her. Children sometimes arrange this kind of administration of justice themselves. The results are usually deplorable, little wars and big ones often begin like this and much bad feeling results. Therefore in practice the retributive aspect of punishment is not often found in enlightened schools though possibly the way in which some busy teachers deal out their awards in an objective way, without making inquiries into the circumstances accompanying the misdemeanours involved, savours somewhat of the spirit of the retributive law. In an endeavour to make the punishment “fit the crime” they distribute their awards according to a predetermined scale, e.g. a “half” for a “lie,” a “switching” for a certain number of “*Non Satis*” marks, “300 lines” for missing “prep.” and so on. That the “lie” was an incorrect statement made in sheer ignorance, and that there may be some perfectly good reason for the “*Non Satis*” marks, etc., are immaterial considerations. One can in practice never be certain as to the moral effects of punishments of this order as they vary so much from one individual to another according to temperament.

The fourth view of correctives is perhaps the one which finds most favour in modern eyes. This is that the punishment should fit the “criminal” rather than the “crime.” In other words its purpose is reformatory and it is directed towards bringing about some modifications in the “miscreant’s” emotional patterns, some change of heart, that will alter his attitude and subsequent conduct. It is aimed at more than merely stopping him from doing something again, and seeks to have a positive forward directed effect upon him. There are some authorities who doubt whether this can be ever brought about in practice by

¹ Exodus xxi. 23-25. Another version appears in Leviticus xxv. 17-21. The Christian view is expressed by Jesus in S. Matthew v. 38-42.

the use of correctives, i.e. by punishment. Others approve of it most strongly. One must not forget, however, that generalisations upon such matters as these are highly speculative. Individuals differ one from another in the basic temperamental patterns which they inherit, and in those which they subsequently develop. Some children, for example, are extremely self-assertive, others unduly submissive, some very easily provoked to anger, others relatively placid and over-patient, while some are by nature very sociable and others "solitary" in their outlook. When therefore we are thinking about punishments, æsthetic development, interests, etc., in connection with emotional life, we should remember that we are considering an aspect of human nature which is rather unpredictable. If we light the gas under a kettle of water we know with certainty that in due course the water will boil. We can have no such certainty in respect of the results of what we do upon the emotional life of human beings. What has a definite effect upon "A" may not have the same effect upon "B," etc. Therefore one needs to exercise the greatest care in making any general statement regarding the effectiveness or otherwise upon children of any form of correctives. Reformatory punishment has, however, this virtue. It concerns itself with the conduct of an individual who is therefore made the focal point of the educational process involved. It will only be used if it has some positive purpose in view, and the discerning teacher will note carefully its effects and modify his subsequent treatment accordingly. It is obvious, moreover, that where the teacher is concerned with offences arising from grave moral defects, any punishments involved should always be applied with a view to reforming the offenders, otherwise they have no moral values at all for these offenders.

It is regrettable that in the popular mind schools are usually associated with punishments. When avuncular relatives are being "charming" to children and inquiring about their schooling they invariably ask, "Did you get the cane?" The over-use of punishment in the past is probably responsible for this view, and possibly all that many older people can remember of their school-days relates

to this aspect of their life.¹ Modern views of education as a rather jolly, happy business instead of the gloomy, tedious grind of earlier days are slow to make themselves known in the outside world. Some schools, too, lag behind the modern trend. If children are kept busily and happily employed on pursuits which are worthwhile, punishment should become decreasingly necessary. The teacher therefore is strongly advised to endeavour to keep his punishments to the barest possible minimum. As a general rule the more one punishes the more one may, as familiarity breeds not so much contempt as indifference in such matters. When, however, any punishment must be administered it should be given properly and strictly according to all the official regulations of the governing body of the school. Unofficial punishments, such as casual slaps and taps *en passant*, are best avoided since they can become habitual and correspondingly less effective.² They are quite undesirable forms of punishment in any case.

¹ The writer himself had considerable personal experience as a pupil of what would in modern eyes pass for brutality. Pupils were flogged not only for misbehaviour, and there was plenty of it in the school he has in mind, but also for ignorance, the sending of the monitor for the "tawse" being part of the routine introduction to a spelling or arithmetic test. The tragedy was that the "operator" concerned was really a very conscientious teacher who had the welfare of his pupils at heart. He seriously believed that he could "learn" even the dullest of us either by ordinary teaching methods or by physical applications to various parts of our anatomies. How deeply engrained this idea was at one time is shown by Professor Ellwood P. Cubberley's account in *The History of Education* (Constable) of the Swabian school-master who, "with characteristic Teutonic attention to details, has left it on record that, in the course of his fifty-one years and seven months as a teacher he had, by a moderate computation, given 911527 blows with a cane, 124010 blows with a rod, 20989 blows and raps with a ruler, 136715 blows with the hand, 10235 blows over the mouth, 7905 boxes on the ear, 1115800 raps on the head, and 22763 'notabenes' with the Bible, Catechism, singing-book and grammar. He had 777 times made boys kneel on peas, 613 times on a triangular piece of wood, had made 3001 wear the jackass, and 1707 hold the rod up, not to mention various more unusual punishments he had contrived on the spur of the occasion. *Of the blows with the cane, 800000 were for Latin words; of the rod 76000 were for texts from the Bible or verses from the singing book.*" The italics are the present author's.

² The writer knew one teacher who almost invariably followed up an order to the class by "cuffing" the nearest pupil to him. The inevitable result was that the class responded to the "cuffing" rather than to his verbal orders. When on one occasion he failed to administer the executive physical component of his order the whole class took not the slightest notice until he somewhat belatedly remedied matters by "cuffing" two boys.

DISCIPLINE AND ORDER

It is important for the beginner to realise that the two terms used in the heading of this section are not necessarily synonymous, since the distinction between them is one which has a considerable bearing upon practice. "Order" relates primarily to that condition of affairs in a class which is essential for the carrying on of any school work. A teacher can secure the necessary order in a variety of ways. For example, by the use of a harsh repressive rule, backed up by a liberal use of punishments, it is possible to keep children in order so that they can be "taught." It is, moreover, possible for a teacher to do the same thing by the exercise of a compelling personality of such a nature that the pupils are overwhelmed like pygmies in the presence of some superhuman giant. In both cases the children are somewhat like the performing fleas who are so harnessed that all they can possibly do is to "perform."¹ They have, therefore, no other alternative but to remain perfectly "ordered" since they dare not or cannot be otherwise. In contrast to this type of order is that which obtains in a classroom where, under the influence of a co-operative teacher-pupil relationship, the children are engaged upon purposive activities in an easy, natural atmosphere. There is no disorder, and the children conduct themselves reasonably because they have no desire to do otherwise. Authority does not obviously and ostentatiously dominate the scene, and the relationships existing among all the members of the class are like those of any ordinary assembly of people who possess a number of interests in common. Regulations exist, but the members are not kept continually conscious of being "managed." These regulations, moreover, are backed by the sanction of the whole community and accepted as being necessary for the common good.

In the first two cases instanced above, the driving force behind the maintenance of order comes from sources which are external to the pupils, i.e. the children are "ordered." In the third case the pupils are "in order" as a result of their own attitudes towards

¹ Cf. footnote, p. 65.

their work, to one another, and to authority. The forces behind the maintenance of this order are derived from the children's own internal emotional drives, from their interest in the work in hand and from the social sentiments which they have developed through their community life. Here we see an ideal condition of affairs which is not always to be secured in practice, but which should be the ultimate goal of all classroom organisation, viz. that in which order is maintained through the establishment of a healthy "discipline." "Discipline," states Nunn, "consists in the submission of one's impulses and powers to a regulation which imposes form upon their chaos, and brings efficiency and economy where there would otherwise be ineffectiveness and waste. Though parts of our nature may resist this control, its acceptance must, on the whole, be willing acceptance—the spontaneous movement of a nature in which there is an inborn impulse towards greater perfection."¹

In the sense in which Nunn uses the term, and which we will take as our guide, discipline is an inner control arising from the individual's own impulses rather than something imposed externally upon him. It is thus most intimately connected with character development as we have already seen (p. 260). That it involves some restriction upon individual freedom goes without saying. The essential quality of a well-disciplined person is that, while parts of his nature may "resist this control" his "better nature" willingly accepts it. The practical problem which faces the teacher is that of determining how far he is to restrict the freedom of his pupils or, to put it another way, how far he is to allow their spontaneous activities perfectly free play. The solution of the problem appears to the writer to be found in the nature of freedom itself. In practice freedom always implies a correlative responsibility. For example, we are free to select the religious faith in which our own children are to be brought up, but that freedom places upon us the moral responsibility for selecting that faith. We are free to ride a cycle upon the highway but we are morally and, in this case legally, responsible for riding without danger to the public. The teacher should therefore take every

¹ Sir T. Percy Nunn, *Education: Its Data and First Principles*, p. 230.

opportunity of granting freedom to his pupils in those spheres in which they can, through its exercise, reasonably be expected to appreciate and assume the responsibilities involved. To do more than this is to demand too much of them and to do less is to restrict their development unnecessarily. Discipline, designed upon the basis of this principle, becomes an education in the proper use of freedom as well as in the essential nature of responsibility and consequently exercises a most profound influence upon the development of the pupils' characters.

The practical corollaries of the foregoing are most important. We have already condemned "over-teaching" of pupils and we now extend the condemnation to "over-management." Character development cannot satisfactorily be effected unless children are given opportunities for shouldering responsibilities and conducting their own affairs. A so-called discipline which gives little or no chance to the children of exercising their own judgments in making deliberate acts of choice in a variety of circumstances, is not a true discipline in the educative sense. Even young children can assume responsibilities of a simple nature, e.g. in the care of the classroom, in matters of its arrangement and in keeping it tidy, etc., in preparation for certain types of activities by distributing materials and subsequently collecting them, in the care of specimens and pets, while they can be left perfectly free in much of their play to experiment and create within the limits of the materials provided. Older pupils can take an ever-increasing share, not only in the maintenance of the classroom and its equipment and amenities, but also in the organisation of their own work, of social functions, and of their own government. Whether ultimately they can assume the full responsibility for this last, as some authors suggest they should, is a matter of considerable doubt. Their responsibilities as pupils are never in the long run equivalent to those of the teacher, and the amount of freedom which can be granted them in this respect appears to be accordingly limited. In practice, however, the teacher will find it a sound rule to aim at granting the greatest measure of freedom to his pupils which is consistent with the principle enunciated here. This freedom,

moreover, should be such as to permit them to make mistakes. It will be the teacher's function to bring home to them on such occasions the nature of these mistakes so that their future conduct can be accordingly modified. The pupils are entitled to this help from one of superior maturity and experience. Where, however, any abuse of freedom occurs, either by individuals or by the group, it is inevitable and just that the freedom should be curtailed or withdrawn. Its restoration can be made when the individuals or the group concerned have worked for and earned it once again.

In practice one finds that a class community resembles any other comparable group of human beings in that it will have its "leaders" together with those who are led. In the latter class, which naturally forms the bulk of the community, since only a relatively few can lead, the teacher will find some children who "lean" unduly upon their fellows and upon the teacher. They take little or no part in forming public opinion and tend to take no great share in communal activities. The "leaners," as we may call them, constitute a special problem for the teacher who, in his delegation of responsibilities, can sometimes give them valuable assistance in establishing their self-confidence by encouraging them to emerge from their colourless obscurity in the performance of some simple communal service. One cannot obviously train a class of leaders in the ordinary course of events, but every child should be given the opportunity of doing something more than merely becoming a good follower.

CLASS MANAGEMENT

When the teacher first "takes over" a class on his teaching practice it is obvious that he cannot be expected immediately to establish good discipline in the sense which we have described at length in the preceding section. Discipline is not some condition of affairs which can suddenly descend upon a class in the same way that one can light up the room by pressing the electric switch. It is essentially a matter of development and growth extending over a period of time. The "new" teacher therefore, however well intentioned he may be, is very much at the mercy of circumstances.

If his class is well and truly disciplined then his task is a relatively easy one. If, however, although the class may be ordinarily well ordered, it is not really well disciplined then he may experience considerable difficulty in putting into practice the principles which have been enunciated here. His immediate task is to maintain conditions under which the work he has planned can be carried out, i.e. to have his class in order. The following suggestions are offered as being likely to help him in dealing with his immediate problem, i.e. to secure good order, and at the same time to do it in such a way that he does not offend against any of the principles associated with the establishment of sound discipline.

To begin with the teacher is advised to carry out the recommendations given in Chapter IV. Armed with this information he will have at his disposal knowledge which will help him, not only in his preparation of the activities, but also in his approach to the class. If, before he actually conducts any teaching, he can get an opportunity of observing how the class behaves in the hands of other teachers so much the better. He will also then be able to get some idea of the kind of discipline to which they are accustomed.

When the teacher first takes charge of a class he should remember that he represents a new factor in the classroom life, a new form of experience for the pupils. They will naturally tend to be curious as to what is going to happen, and he must not be disconcerted by the air of expectancy which he will ordinarily find. Many beginners tend to have their confidence undermined by this experience and to become unduly self-conscious. Just as they feel that the pupils are weighing them up so they begin to try and evaluate themselves in the pupils' eyes. The cumulative effect of this somewhat uncomfortable experience is for the teacher to concentrate unduly upon what he himself is doing, rather than upon what the pupils are to be required to do (see p. 243) and the ways which he has planned to get them to do it.

The teacher is strongly advised not to exhibit any over-anxiety about the order in the classroom. Diffidence or over-anxiety of this nature seems to influence the pupils by suggestion. A kind of

emotional tension arises which is often relieved by the very kind of occurrences which the teacher seeks most anxiously to avoid. The latter therefore should approach his class confidently, and suggest to them in his general bearing that he anticipates no conduct difficulties at all. If, however, he has made a thorough preparation of his lessons he will find that this helps him not only to show confidence but also to feel it. The cultivation of a habit of prompt decisive speech will aid materially in building up this confidence. When giving orders or instructions he should express them simply and in a manner which suggests to the pupils that he expects them to be obeyed. A quiet, firm, tone of voice is all that is usually necessary. There is practically never any occasion for raising one's voice unduly when teaching. In fact the more one does so, the more one may because the pupils become accustomed to shouted orders and respond only to them. If orders are given firmly in a clear decisive tone it will be sufficient if they are given once and once only. The teacher should wait in silence for pupils who lag behind in their compliance rather than keep repeating the order. It is surprising how effective a silent pause can become in teaching. It often compels attention, and in a measure acts in itself as a reproach to the laggards.

The teacher should bear in mind the fact that disorder in a class usually originates from pupils who are either not interested in the work in hand or who have not been provided with an active enough share in the lesson. In all oral work he should watch the effects of the teaching upon every pupil. With this end in view he should avoid "crowding on to the class." This leads to the concentration of his attention upon a part only of the class while the remainder feel "out of it." If he stands well back from the class he will be able to run his eye over every member. This not only brings all the pupils into the activity, but it also enables the teacher to note immediately when their interest begins to flag and to modify his teaching accordingly. His own enthusiastic interest in what he is teaching may often be enough to stimulate the pupils' initial interest in the work. He can, moreover, influence them throughout by suggestion, since they tend to become

“infected” with a similar enthusiasm. He cannot, however, rely upon this indefinitely and he must arrange for their interests to develop through their participation in the activity. If he keeps ever on the watch he can judge immediately inattention starts to spread and introduce a variation in his treatment. Children’s eyes are particularly expressive of their mental states (cf. p. 123), and if the teacher watches these he will find them a very good guide as to whether he is “getting across” or not. He should thus be able to anticipate the onset of conditions which especially favour lack of order.

Very early on the teacher should ascertain the class customs for punishments and rewards, and for all matters of a routine character, e.g. movements into and from the classroom, distribution of materials, books, and the like. One of the most upsetting factors in the ordinary life of a class is the departure by a new teacher from a settled way of life. Routine has a stabilising influence and in many respects it helps the class “to run itself.” Immediately one interferes with it a discordant note creeps into the proceedings and confusion is likely to result. The teacher may find certain aspects of the routine such as he cannot really approve of but, in the first instance, he is strongly advised to leave it as it is. Any changes which he thinks desirable he should initiate progressively as time goes on rather than adopt a “new broom” policy in the early stages. Especially with younger pupils it is essential to have materials distributed and collected in a quiet orderly manner. If the established class organisation does not provide for this the teacher should institute a system of “monitors” or “service parties” with definite functions to be carried out, under his supervision to begin with, in a regular systematic manner.¹ Avoidance of fuss and of unnecessary movement is to be aimed at in all class movements and in the distribution and collection of equipment.

The considerations mentioned in the preceding section of this

¹ The practice which one sometimes finds of “winning over” a troublesome or inattentive member of the community by giving him an office which should be a reward is to be deprecated. This does not mean that he should be excluded from social activities but rather that his troublesomeness does not bring him any undue reward which will be bad for him and disturbing to the community.

chapter in respect of rewards and punishments should be borne in mind from the very beginning. The teacher should mark himself down if he has to resort to an over-use of either of these stimuli, and make a close overhaul of his methods. For example, many young teachers are troubled by the over-enthusiastic members of a class who insist upon hurling syllabants at them and waving their hands about despite any punishments. They may even come out of their places every time a question is asked. The teacher's problem here is to stop these practices without damping down the obvious enthusiasm of the pupils. He can often succeed in this by the "silent pause" which has been recommended earlier in this chapter, while he waits for everyone to be properly seated and the "hand flagging" to stop. A better way is to change one's technique and to direct one's questions to individuals in the class. We seem condemned to the "hands up" method of response in teaching. It does appear to have definite values at times, e.g. when the teacher wishes to know whether certain ideas are known generally by the members of the class. On the other hand, it is a rather unnatural way of conducting social relationships which is probably inherited from the days of very large classes. If, however, the teacher has a class of reasonable size it is quite possible to cultivate an intimate personal relationship with the members which makes the "hands up" method quite unnecessary unless the teacher really needs it for a special purpose.

A common failing among inexperienced teachers is that of trying "to talk the children down." This habit usually starts, strangely enough, when the pupils are commencing individual work. The teacher may discover that his instructions have been inaccurate or inadequate, e.g. he may have given a wrong reference in a text-book, or possibly he may discover that the majority of his class do not know exactly what is required of them. A buzz of conversation relating to the circumstances arises, and the teacher endeavours to remedy his omission or error in spite of the children's conversations. Modern methods do not demand a rigid unnatural silence in a classroom, and the insistence upon pupil-activity suggests limitations upon talk by the teacher. If, however, it becomes

necessary, as in the circumstances quoted, for the teacher to make any announcement which he intends the whole class to hear, he should stop all work, wait until he has everyone's attention, and then say what he has to say. To allow children to talk when they should be listening is to encourage them to be ill-mannered, inattentive, and subsequently disorderly. When, moreover, they are engaged upon individual work, e.g. in composition, arithmetical exercises and the like, they should be given the opportunity of devoting undivided attention to their work. The teacher can encourage an industrious and becoming quietness in the room while this work is going on by making any individual corrections as quietly as possible to the pupils immediately concerned. By being quiet himself he can suggest quietness to his pupils.

Punctuality and tidiness are two important matters, attention to which is well repaid in teaching and particularly in class management. A punctual business-like start to all lessons has a good effect upon order. If, moreover, the pupils are due to make a move at the end of the lesson, e.g. to the gymnasium or the workshops, absolute punctuality in finishing up and clearing away is very desirable. If the pupils experience a hurried scramble and leave materials about which ought to be collected, a bad impression is registered. The time-table should not of course exercise too restricting an influence upon pupils' activities and, if they are interestedly completing some learning unit, there is no very great harm done in overrunning the clock, unless someone else is inconvenienced. Where therefore the teacher is responsible for consecutive lesson periods, punctuality in ending an activity is not quite so important, but even so he should watch any departure from authorised times with a view to its effects upon activities which have to surrender part of the time allocated to them. To begin with therefore the teacher is advised to plan his work within the limits of the time-table as far as possible. Tidiness is much akin to punctuality. The teacher himself can suggest to the pupils through his own conduct the desirability of keeping the room and desks tidy. Neatness in working on the board, tidiness of the teacher's part of the room, e.g. of his desk, and neatness in stacking

exercise and text-books may appear trivialities. They are, however, essential qualities of an environment which suggest order to the pupils. If the teacher insists quietly and persistently on the pupils' fulfilling their part of the obligation by keeping their desks and the floor clear of scraps of paper, etc., he can further help to maintain the necessary order which is required. The order and discipline which obtain in an untidy room are rarely of a satisfactory quality.

In conclusion, the teacher is reminded of the necessity for the maintenance of healthy conditions in his classroom. Frequently listlessness and inattention on the part of the pupils are due to their being kept at work in a badly ventilated, overheated room. The teacher has probably not noticed the deterioration of conditions in the room which may have been quite fresh at the commencement of the session. When therefore he is seeking the reasons for lost attention and possible disorder he should take into account any omission on his part to consider the physical condition of the pupils. Changes of positions should be permitted when they appear desirable. Unhealthy postures should always be corrected at any time. This is especially important in sedentary occupations, e.g. in reading and writing. Lighting conditions and visibility of illustrative material should always be kept continually under supervision. Health education is not a subject to be taught to children, possibly by a specialist teacher, but an enlightened way of living, the conduct of which is the function of every teacher from the beginning to the end of the session. In fulfilling this function, moreover, the teacher will be directly contributing to the solution of his own particular problems among which is the one which we have here considered, viz. the maintenance of order and the establishment of healthy disciplinary conditions.

CHAPTER XIII

THE TEACHER

In the preceding chapters an endeavour has been made to indicate the main characteristics and techniques of modern teaching. Starting from the standpoint that the pupil "is a living being with a potential of his own, containing within itself its own characteristic qualities," we have seen some of the main ways in which a teacher can help to bring about the realisation of those potentialities by the conduct of activities and experiences which modify the pupil's inherited patterns of behaviour. By the development of his knowledge and the acquisition of skills he is led "to greater independence and self-sufficiency through increasing familiarity with and control of his environment." We have noted, moreover, that this does not constitute the whole of the teacher's function. The kind of person the pupil really is, his tastes, and the moral values which he actually expresses in his conduct, are of vital concern to the teacher. These are less tangible than the results of the former types of teaching, but none the less important when one comes to consider the whole nature of the teacher's work.

As one might expect, some teachers are much more successful than others in achieving the "results" which are indicated in the preceding chapters. Authorities who are called upon to evaluate teachers for the purpose of qualifying examinations, promotion, etc., are much exercised regarding the ways in which such assessments should be made. A great deal of research upon this and related problems has been made in the last two decades with a view to determining the natural qualities which go to the make-up of the successful teacher, the proper methods of assessment of teaching skill and suitable methods of training.¹ The results are somewhat inconclusive since one is dealing always with measures which are

¹ For example, the bibliography to Bulletin No. 8 of the Dept. of Educational Research, University of Toronto, *Forecasting Teaching Ability*, contains no fewer than 57 separate researches. The present writer has personal knowledge of many others, published and unpublished, upon this and similar subjects.

suspect, and with an as yet imperfectly developed technique of research. For example, if one measures teaching efficiency on the pupil plane, the only ultimately sound one in the view of the writer, one can assess the knowledge and skill which the pupils develop by comparatively objective means. Examination techniques are well advanced in this respect and the measures are easy to apply. When, however, one comes to evaluate the "imponderables," e.g. character development and æsthetic sensitivity, an insurmountable problem arises, since these do not lend themselves to objective measurements. In spite, however, of these difficulties certain general conclusions can be drawn which are of assistance to the beginner since they indicate factors which are more or less under his control and to which he can profitably pay attention in his own preparation for teaching.

THE TEACHER'S PERSONALITY

It is a commonplace that teaching is largely a matter of "the personality of the teacher." In the sense in which the word is here used, personality relates to the impression which the teacher produces and the influences he exerts upon other people. The world at large does not see the teacher at work in the classroom, but it meets him outside of it and tends to type the "teaching personality" as one which is somewhat "bossy" and inclined to lay down the law in an endeavour to put everyone else right.¹ This popular view, as Mr. Maurice Harrison points out in *Teachers, Made and Marred*, is not without some foundations in experience. However, it is one which should become decreasingly valid with the spread of modern ideas which, as we have seen, have no place for "bossy" authoritarian attitudes anywhere, either in the classroom or out of it. We are here, however, concerned with the influence of the teacher's personality upon his pupils, and the beginner is entitled to ask whether there are any known facts about the personality factors which are most effective in the classroom.

¹ During the famous debate on Clause 82 of the 1943 Education Bill one M.P. who was particularly angry with the Government for their attitude could apparently think of no more caustic comment than to describe it as "schoolmasterish."

Much research has been done upon this aspect of the teacher's equipment by the application of so-called personality tests, temperamental ratings and "inventories," with a view to assisting in vocational guidance and in the training of teachers. The results are largely inconclusive, chiefly because of the unreliable nature of the estimates when they relate to single traits, such as those of assertiveness, sociability and the like, which figure in most schedules.¹ The general conclusion is that it is very doubtful whether there is such a thing as the "teaching type" of personality, since persons of very different temperamental make-ups seem to be able to achieve equal degrees of success in practical teaching. "It takes all kinds to make a world," and it is highly probable that modern developments in education, which tend to bring school life into ever closer relationship with the wider life of the outside world, will incline to the view that "it takes all kinds of teachers to make a school world." It is therefore extremely unwise to be dogmatic about a teacher's personality. In the opinion of the writer the best teachers are those who have certain natural qualifications for their job, and who are most characteristically their natural selves in the classroom. Investigations into the nature of the qualities concerned have shown them to be somewhat elusive, and there is no firm consensus of opinion upon the matter. The whole pattern of the teacher's temperamental make-up has to be considered since marked deficiencies in some directions, which are ordinarily considered essential, can often be cancelled out by the possession of special qualities of a different nature altogether.

With the above limitations in mind the writer proposes the following qualities to the teacher as being abilities which he can in some measure cultivate, and which also correlate with teaching efficiency.²

¹ Cf. F. M. Earle : *Methods of Choosing a Career* (Harrap), p. 109.

² From an unpublished research by the author. Statistical methods were employed in the research, which was conducted over a number of years with men students in training at a residential London College. The final teaching marks awarded by the Board of Education were assumed as the criteria of teaching achievements. Temperamental ratings were made by members of staff as well as of the student body. Conditions were particularly favourable for observation on account of the residential character of the College and of its vigorous social life.

(a) *Leadership*.—As a general rule those students who show marked powers of leadership of their fellows *tend* to be successful in the classroom. This is what one might describe as a “statistical” truth, with all the qualifications which this implies. It does not mean that every student leader is *ipso facto* a good teacher, nor that those who have no office in the student organisation are unable to teach. It simply relates to a general tendency which is characteristic of a fairly large class of people. It suggests, moreover, that leadership and teaching have much in common, and that the innate and acquired qualities which contribute to the one will have a comparable contribution to make to the other. There is, however, this important difference between leading one’s fellows and acting as a leader in the classroom. In the former case one becomes the leader in a democracy by consent of those who are governed, whereas in school the teacher is not chosen by the pupils but by authority. Nevertheless it is obvious that although the teacher is not of the children’s choice he will do much better work leading than he will do in driving them.

Leadership is not a single trait but a composite quality involving a large number of characteristics. As a rule good leaders are fairly assertive people, possessed of initiative, tact, and capacity for understanding those whom they lead. Their general self-confidence finds an echoing response in their followers, who respect their judgment and place their reliance upon it. In school the teacher’s attitude to his class can well be built up with these factors in mind. He cannot demand the respect of his pupils but he can earn it through his personal relationships with them. He must be assertive in a way which is not over-powering, and their respect will be secured by an encouraging manner, coupled with a firm but not aggressive or harsh control. He must be a man of his word, refraining from threats which he has no intention of carrying out, scrupulously fair and just in all his awards, sincere in his manner, confident but not overbearing in all his relationships with individuals and with the class as a community.

Above all he should try to adopt a sympathetic attitude towards his class. This does not imply “softness,” which the

children tend to despise, but rather an ability to understand their point of view, to appreciate what is going on in their minds and to understand their feelings. A very famous London headmaster, the late J.W. Samuel, used sometimes to listen to lessons by young teachers. Frequently he would approach the teacher at the conclusion with the question, "Well, what did you think of your lesson?" On receiving an expression of complete satisfaction he would then ask, "But what did Billy Jones and Tommy Smith (two pupils in the class) think of it? Do you know?" If the teacher could give no satisfactory answer to this Mr. Samuel would deliver a little homily, the burden of which was that the teacher's opinion was of no significance, and that his sole concern was to see everything from the pupils' point of view. Now this kind of ability is not something which one either has or has not. It can be cultivated, though of course some teachers have greater natural gifts for it than others. A study of children's expressions, of their actions and motives for these actions, of their play, and of their personalities will be most helpful. The writer himself used to find it a useful exercise to try to forecast children's actions in particular circumstances before they performed them, even to anticipate their thoughts during a lesson. With practice of this kind, and with a fair ability to understand human beings, one finds that the pupils almost become open books wherein one can read many signs of the utmost significance in dealing with them.

(b) *Other Temperamental Characteristics.*—There are a few other traits which, although possibly some of them may already have been involved in the complex of qualities associated with leadership, do themselves give significant correlation with teaching success. They include carefulness, initiative, persistence, sociability and sense of humour.

Carefulness implies that characteristic of outlook which is opposed to "slapdash" and thoughtless behaviour. On the positive side it involves a deliberate control of situations with an eye to significant details. The careful teacher is one who realises that, while first things must come first, there are relatively minor points not to be overlooked in teaching, e.g. arrangement of

apparatus, careful preparation, administrative details and the like, which contribute to the whole set of conditions in an important way. He makes every effort to review the whole set of circumstances in an endeavour to avoid being set back by minor as well as major shortcomings. In doing this he maintains clear judgment of values and avoids undue anxiety, which as a rule invites failure.

Initiative.—In teaching, this indicates a readiness and an ability to experiment, undertake new departures, face up to unforeseen circumstances and improvise to meet new situations. Many teachers in the early stages find that they can cultivate this with an effort, especially if they get the right idea of the teacher's function. It is largely a matter of an intelligent understanding of the nature of the teaching process and of confidence in one's own powers. Some people naturally possess plenty of initiative, while others may think themselves deficient in this respect. Most, however, of the latter can find unexpected stores of it if they adopt the proper professional attitudes which have been suggested in these pages.

Persistence.—This trait can best be described not as sheer dogged insistence upon a particular course of action, but rather as perseverance and patient application to tasks in spite of difficulties or disagreeable features. Many teaching difficulties can be overcome by adopting this attitude. Teaching involves many activities which are not in themselves particularly interesting, e.g. the marking and correcting of exercises, record keeping, routine supervisory duties and the like. These are, however, most essential prerequisites for the successful and more enjoyable parts of teaching to which they ultimately contribute. Moreover, while the teacher may not necessarily be called upon "to suffer fools gladly," he must exercise the greatest patience in "suffering immaturity" sympathetically and wisely. Impatience or lost temper are usually very damaging to his prestige. On the other hand, excess of patience can become a handicap, and the over-patient teacher may end up in losing the respect of his pupils, who may rate him as a "bit soft." A show of righteous indignation and a little "thunder" on rare occasions when they are deserved, may be very salutary, provided that the teacher's self-control is well

maintained, and these exhibitions are not really the products of lost temper. Children respect a vigorous dynamic personality rather than one which is lacking colour and is without emotional expression.

Sociability is a comprehensive quality relating to one's general relationships with one's fellows. Some students enter into the general life of the community easily and naturally, taking part in most functions with obvious enjoyment, and making their individual contribution to the wider life of the student body. Others do not find this quite so pleasurable and tend to be more "solitary" in their ways. The former class are at a definite advantage in their school work. The urges which lead them to mix freely and enjoy the company of others help to ease the classroom relationships. Teachers of the more "solitary" type, however, can often overcome their handicap by entering fully into the life of the class community, by taking an interest and possibly participating in the out-of-school recreations, games, etc., of the pupils. This sometimes helps to ease their own social relationships with their fellows and to make them more natural.

Ex-students of the late P. A. Barnett, a famous educationist who trained many distinguished schoolmasters and educational administrators, sometimes told how he used to offer a startling piece of advice in his farewell speech at the end of their Training College course. At a time when assistant teachers' salaries rarely exceeded the maximum of £100 per annum, and when the minimum was often no more than £60 or £70, he used to advise them to include among their very first purchases a dress suit, one of the "passports to society" in the 90's. Many of his students aver that it was good advice which they never regretted taking. Whether he meant it to be taken literally or not is immaterial. It was his way of impressing upon his students the fact that as schoolmasters their responsibilities for developing the social qualities of their pupils could best be shouldered if they themselves entered fully into the social life of the community. Educational requirements of the present and of the future are likely to make more and more insistent demands upon schools for social training and

for the adjustment of their pupils to community life. The teacher can only equip himself for this aspect of his work by practical experience of that life so that his pupils may have the benefit of his experience to which they are entitled. That this should not be interpreted in a narrow way, involving an exaggerated view of the importance of formal functions and the like, goes without saying. What is implied, however, is that the teacher should get to know people, share interests with them, move and mix freely with other human beings, and gather the social experience which comes from wide contacts with his fellows. An improvement in the ease with which he will be able to handle the social life of his classroom, is but one of the many values following from this experience.

Sense of Humour.—The exact nature of this trait is hard to define. Whether it can be cultivated or not is a matter of opinion. It is mentioned here, however, because its possession by a teacher, whether it is innate or acquired, is of great value to him in his work. There is something intensely human about humour, something deeply rooted in the sources of human emotions, and the teacher who can appreciate it is at a definite advantage in the classroom as compared with one who lacks such an appreciation. He is advised, however, that it is not his function to be a "funny man." Too much deliberate comedianship is liable eventually to pall and to become rather tedious for the pupils. Where, however, a humorous situation arises naturally, especially if the laugh is at his own expense and he can genuinely enjoy it, it is a good thing for the teacher to allow everyone to get the full value out of it. A good story with an appropriate point, a joke which helps to illustrate a particular feature, or a piece of humorous literature, in the hands of a teacher who is blessed with a sense of humour, can well make a contribution towards lightening the proceedings. Laughter derives its motive power from one of the instinctive modes of behaviour (see p. 13). A good hearty laugh, or a smile, is therefore a perfectly natural mode of expression and as such it can colour an experience so that this becomes educative in the very best sense.

There is a further group of characteristics which have an important influence upon the teacher's personality and therefore upon his teaching efficiency. They are largely expressions of his temperamental make-up and of his general and professional attitudes. To a great extent they are controllable, and attention is therefore drawn to them. They relate to what might be termed his "professional" manner. This is something comparable with the doctor's "bedside" manner. We have previously suggested that teachers should be their natural selves when at work, but in any one case the "natural" self concerned will inevitably take on a professional colouring of sorts. Many features which help to make this professional or class-room manner effective have already been remarked upon in this and other chapters. There is, however, a further aspect of it which may be considered here. It is surprising how susceptible children are to a "new" teacher's personal appearance, particularly in respect of his facial expression and dress. That he is good looking or ugly does not bother them much. It is the kind of expression which he bears upon his face which makes the greatest impression. An attractive, cheerful expression will be received much more favourably than one which is worried, depressed, or forbidding. First impressions are important, especially upon one's earlier practices, therefore this is well worth keeping in mind. Even if one enters the room with a somewhat apprehensive feeling it is advisable not to show it in one's facial expression. With regard to dress, it is best for the teacher to omit any little individual predilections of an exceptional nature which he may have acquired, at least when making his first acquaintance with his class. Very strong personalities can usually get away with the most startling sartorial abnormalities, but it is not given to most ordinary persons to outlive things of this kind, and tasteful sobriety is therefore recommended in the initial stages.¹ Thereafter the

¹ In this connection, the writer once had a surprising experience. He was just too late to advise a student against taking over his very first lesson wearing the most startling blazer which it has been his privilege to see for years. Accepting the step as irrevocable, he placed the class under observation. (they were a "mixed" class of ten-year-olds). The girls gasped and were lost in admiration, the boys just gasped. Within five minutes, however, the teacher concerned had carried all before him with

relationships between the teacher and his pupils are mainly products of teaching ability and of the teacher's personality, and matters of dress and appearance, though they still make their influence felt, become of relatively minor importance.¹

With regard to his classroom manner the teacher is strongly advised not to "type" it too narrowly. There is a characteristically pedagogical type of manner with which we are all familiar, and which needs little or no detailed description here. It is often somewhat formal, rather rigid and inflexible, and in many respects unnatural. For most school purposes, however, natural modes of speech and of general deportment are much to be preferred. Speech is a most important component of the teacher's personality. He should therefore take the greatest care that it is always suitable for the purpose in hand, adjusted to the level of his pupils' capacities, audible, and as well produced as possible. Harsh and unpleasant voices are not as effective in the classroom, *ceteris paribus*, as those of an attractive musical quality. One's intonation, too, should be of the natural easy kind which attracts rather than compels the attention of the pupils. A vigorous, well varied delivery, combined with a business-like interesting manner of address, will help to foster an appropriate setting for stimulating classroom activities. The teacher's aim should be to bring vitality into the life of the classroom and reduce artificiality to a minimum through the effective use of his own personality.

There is, however, a danger in the foregoing recommendations to which the attention of the reader is drawn. This lies in the possibility of drawing the teacher's attention unduly to his own personality. An undue self-consciousness is a hindrance in teaching when, as we have already noted, our main concentration of a first-rate lesson in the course of which his charm of manner and exceptional teaching skill would have triumphed over any sartorial competition.

¹ The recommendations which the writer has offered throughout this book are intended, as mentioned in the Preface, to be of help to teachers of both sexes. This is the one offering, however, which he makes to men only. As a mere male he would not dare to make any suggestions to members of the opposite sex in the matter of dress and appearance. Their artistry in these respects commands his greatest respect, as witness their victory over coupon restrictions during the War during which we men fought a consistently losing battle on the clothing front.

attention should be upon the pupils and upon their side of the learning process. A teacher therefore whose attention is fixed upon himself and upon his own actions, expressions, manner, etc., is liable to miss the main lessons which he might very well learn from his teaching practice. However, the indications given here will help him to take stock, so to speak, of himself at suitable times during his teaching, and possibly guide him in any particular aspects of his own preparation which he feels he ought to undertake.

SELF-CRITICISM

During his practice the teacher will undoubtedly receive helpful criticism from other more experienced teachers and from supervisors upon his actual technique. He may even at times be confronted with differences of opinions on details of method among his advisers. This arises naturally from the nature of the work which is being undertaken, as well as from different viewpoints which people take upon educational problems. This sometimes rather exasperates the new-comer to the study of educational methods, who feels that experience should be formulated so that it at least knows its own mind. The answer to this objection is that all attempts to do this have failed, since there is not and cannot be, any one final and unalterable solution of a rigid character to any specific educational problem. The fault, if fault it be, lies not so much in educational thought as in that variable and highly complex factor, human nature itself, which is the main concern of education. The lack of finality, moreover, is not necessarily a weakness, and it can be viewed as a sign rather of a vigorous progressive development of thought and practices of a professional kind, which far transcend the mere applications of "rule-of-thumb" methods. It is this characteristic which marks out professional practices from the work which is involved in some other types of vocations. The truly professional attitude involves the teacher's viewing of his work, not as a matter of the application of a set of rules in the classroom, but rather as the dealing with a series of human problems, the solutions to which are to be sought and worked out within the limits of well-defined general principles

based upon scientific knowledge and philosophical considerations. He is therefore advised to note any conflicting views which he may encounter, endeavour to form a conclusion for himself or, if necessary, keep an open mind until further experience makes a more definite conclusion possible.

In the early stages the teacher's practice will be mainly imitative and experimental. He will naturally copy some of the methods which he sees other more experienced teachers employ in circumstances similar to those in which he is working, as well as endeavour to apply, according to his lights, the lessons which he has learnt regarding teaching technique. Both these aspects are important, but it is from the experimental work that he will derive most of value to him in bringing an individual quality to his work. The development of his future artistry therefore depends upon his ability to evaluate profitably the results of this experimental work, and to adapt his future practice in the light of the experience which he gains. This implies a measure of self-criticism to supplement the assistance which others can give him. This criticism is most useful when it is made according to a systematic plan. If a notebook is kept, in which records are made frequently during the practice, when the teacher has a moment or two to "take stock," it will provide some very useful data. If the entries can be made against any relevant notes of lessons which may have been written they will prove more useful still. There is no set plan for criticism, but the teacher may find the following quite useful points to consider when noting his comments upon any particular lesson :—

- (a) Did the lesson fit into the scheme for the course as it was planned, or was it unduly isolated ?
- (b) Was the aim of the lesson definitely attained ?
- (c) What did the children actually learn ?
- (d) Were any parts of the lesson a failure ? What were the reasons for any failure (e.g. poor beginning or a " peter out " at the end ; material unsuitable ; faulty knowledge of subject on teacher's part ; unsuitable method ; disciplinary failure . . .) ?

- (e) If any part of the lesson was an outstanding success what were the contributory factors ?
- (f) Was the pupil-activity well maintained ? Did the teacher do anything which would have been better done by the pupils themselves ?
- (g) Was questioning well distributed ? What questions were good ? What questions were faulty ? Why did they fail ?
- (h) What were the reasons for any departure from the original plan of the lesson ? Should any change have been made which was not ?
- (i) If the teacher had the lesson to give again what changes would he make in his plan ?

Similar considerations might be given to the conduct of a whole course of lessons, e.g. :—

- (a) How far was the general aim of the course attained ?
- (b) If the course were repeated, what rearrangement or modification should the teacher make of matter or method ?
- (c) What opportunities were missed (e.g. of correlation with other subjects, of providing greater pupil-activity, or of utilising practical illustrative material) ?
- (d) What were the reasons for any particular large-scale failures or successes ?
- (e) How did the results of the revision or test compare with expectations ? What reasons can be suggested to account for any discrepancies ?

In all his critical work the teacher should aim to be constructive, to seek out reasons for failures with a view to putting them right in his subsequent practice. If this is not done, the critical side of his notebook can well become a most depressing record of lost opportunity. The purpose must be not only to seek out the causes of shortcomings, but to find the road to success and travel along it. In its complete form the record could with advantage show a follow-up of any failures, as far as it is possible within the limits of the practices, and the measure of success which this brings.

Many teachers find it useful to keep a notebook in which to record observations which appear to throw light upon certain of their problems, or which indicate certain aspects of teaching problems arising in the course of their practical work to which their attention can profitably be directed at some subsequent time. In this book can be entered such items as : striking or puzzling remarks and questions by pupils, notes of particularly effective illustrations, films, etc., which were used, common and unusual mistakes made by children, notes of psychological interest concerning individual children, annotated bibliographies of school books used, any striking or particularly effective methods in use in the school, special features of note in curricula or syllabuses, and so on. The possibilities are almost unlimited and, formidable as it may at first sight appear, the actual recording of these items at odd moments during the practice does not take a great deal of time. When, at his leisure, on some subsequent occasion the teacher spends a few moments classifying and arranging these notes, he will find that he possesses some valuable data which will enable him not only to improve his knowledge of children, but also to guide and illustrate his own professional studies in the light of practical problems which he has actually encountered.

CONCLUSION

No one can forecast with any degree of certainty the exact nature of educational developments during the next few years. The new machinery must be installed and developed to a stage of working efficiency, before the way is clear for the great advances which are envisaged. A period of regeneration and recovery from the effects of the War period must precede those advances. The shape of the social order which embraces the educational system is yet to come, and the "will to progress" has yet to be tested. In spite, however, of the uncertainties ahead, the outlook for education is brighter than it has been for many a decade. Never in recent times have its nature and importance been so much the subjects of public discussion, and rarely has the national conscience

been so deeply stirred to a realisation of its responsibilities for the care and development of the immature members of the community.

Too infrequently, however, does one hear much about the kind of education which it is proposed to offer in the new types of educational institutions which are to be established. It would be a tragedy of a major order if development stopped short at mere recovery and the re-establishment of the *status quo ante bellum*. There is urgent need for the reform of many of our existing notions regarding schools, for a revision of many popular ideas regarding the things which children should learn, and for a drastic modification of many current practices in schools. In short, a new conception of school and of school life, at least during the adolescent stage, seems to be indicated. The time appears to be ripe for the evolution of this concept and for the institution of practical measures designed to bring us along the road towards realising it. The exact form which it should take is somewhat vague and ill defined at the moment, but certain features deriving from the nature of human beings and from the character of the learning process appear to the writer to be clear.

To begin with, the most urgent immediate need of all children is to learn to live in the world here and now. What we teach them must therefore subserve their immediate requirements in the way of physical, mental, emotional and spiritual development. Our curricula and syllabuses must of necessity stand up to the hard test as to whether they do provide the material which will satisfy these needs. Tradition must therefore be examined and submitted to this test, and wherever it fails, and does no more than perpetuate itself, it should be ruthlessly eradicated.

The second principle of major significance is that children learn through experience and activities, that is *by living*. It follows therefore that the school should be a place where real and vital experiences of a practical, intellectual, emotional and spiritual nature come the way of every child attending it. This opens up the possibility of dreams which may yet come true. One can see the school of the future as a community centre, surrounded by

gardens and playing fields, with its gymnasium and health centre, its cinema, wireless-listening rooms and auditorium, its libraries, art and music rooms, workshops, house- and mother-craft centres, laboratories, etc., self-contained in a way, yet intimately connected, through the school visits and journeys which the pupils make, and through its permanent camp site, with the life of the wider society of which it forms a part. In that school one can visualise the life of the busy community engaged upon worth-while activities in a natural atmosphere which is redolent of "real" life in its best aspects. Teaching, as it is traditionally understood, gives place to the guidance and supervision of the activities of interested pupils in order to enable them to get the best out of their experiences. Learning becomes a matter of a perfectly natural development of the pupils' potentialities through those experiences. The vision depicted here may at first sight appear somewhat extravagant, but it must be remembered that many schools have already gone a good way towards it, in spite of their deficiencies in amenities and equipment. In many of these schools the underlying spirit of what has been indicated here is very much alive, and experience has shown that the leading educational ideas which have been expressed in this and preceding chapters are not the products of wishful thinking, but are capable of realisation in actual practice.

Whatever machinery is provided by the State or by private bodies for educational development, whatever improvements may be offered in educational facilities by better equipment or by the most urgently needed reduction in the size of classes to reasonable and teachable proportions, and whatever efforts may be made to spread new ideas regarding the purposes and conduct of the education to be provided in our schools and colleges, the success or failure of the whole business ultimately rests in the hands of the teachers who actually conduct that education. This involves them in very heavy responsibilities and makes big demands upon their personalities and technical skill. In the best sense of the term, teachers should be men and women of the world with broad sympathies and tolerant outlook, with a first-hand knowledge of the wider social order of which the school is an organ, ready

themselves to go on learning and able to help others to learn through an adventurous exploration of life's possibilities.

In this little book an endeavour has been made to suggest ways in which the teacher can set about preparing himself to take an effective part in this great work by developing his technical skill. The reader may feel that they are in places unduly suggestive and that too many loose ends have been left lying about. They have, however, been deliberately left thus, since to tie them up would be fatal. This mistake has been made before in some of the teacher training in bygone days, with the result that at certain periods in our educational history we have sometimes witnessed changes in the concepts of the purpose and nature of education which have but all too slowly found expression in actual practice. Technique must always administer to the wider overriding purposes of the art which it serves, and as these develop so technique itself must correspondingly become reshaped, refined and advanced to meet new demands.

In his professional study the teacher is advised therefore to concentrate upon the fundamentals of the techniques which have been indicated in these pages, to make a liberal interpretation of what has been recommended and to approach his practical work experimentally. He must make a study of techniques in order to be able to approach his work with an intelligent understanding of the nature of what he is seeking to do. But, as we saw in the very beginning, a mere study of means towards ends should never become an end in itself. There is, in the teaching art, much more than the competent exercise of mere technical skills. It involves an intimate knowledge of young people and of their natures, the handling of vital experiences in all their variegated forms for which no formulæ for method, no hard and fast rules can possibly be produced, together with a personal effectiveness on the part of the teacher the inspirational forces for which derive from his own experience of life. His ultimate aim is to synthesise these components so that at the highest levels he becomes an artist whose creative impulses find full expression in the service of those who are entrusted to his care.

INDEX

- ABILITIES, 6, 19, 20, 56-60, 80
 Accidents in schools, 137
 Activity and learning, 17, 24, 28, 30-1, 35, 42-5, 58, 67, 68, 92, 134, 140, 156, 243
 Addison, 22
 Aesthetics, 193
A Guide to Story Telling, 158
 Analogy, 56; use of, 160
 Application, teaching step, 95, 106, 149, 155, 218
 Appreciation, æsthetic, 193; and creative activities, 197; lesson, 200-20; phase of Presentation, 120-24
 Arithmetic, 23, 69, 71, 89, 90, 102, 109-10, 148-9, 152, 225, 236, 247-8. (*See also* Number relationships and Tables)
 Art, 87, 93, 100-1, 115, 134, 138-9, 192, 198, 200, 227; nature of, 3, 4; of education, 4-6, 22; of teaching, 1 *et seq.*
 Association, teaching step, 95

 BALLARD, P. B., 75, 187
 Barrett, Edward Moulton, 51
 Barrie, Sir James M., 203
 Beethoven, Ludwig V., 100
 Bell, J. J., 240, 250
 Binet, 196
 Binyon, L., 204
 Blunden, Edmund, 205, 212
 Blyton, Enid, 158
 Body and mind, 21, 32-5, 46
 Bone, W. A., 158
 Broadcasting, 4, 61, 144, 146-7, 158, 163, 214
 Browning, Elizabeth, 51; Robert, 204, 213, 214
 Burns, Robert, 207
 Burrell, A., 158
 Burt, Prof. Cyril, 109, 256

 CENTRAL Council for School Broad-
 casting, 163

 Character development, 253 *et seq.*
Children's Stories and How to Tell Them, 148
 Chopin, Frédéric F., 209
 Churchill, Rt. Hon. Winston S., 147
 Clarke, Jeremiah, 213
 Class management, 271-7
 Clumsiness, 135
 Co-enæsthetic factors, 145, 147
 Collective teaching methods, 228-30
 Competition, 67-8, 102, 227, 263
 Composition, 20, 33, 99, 103-4, 114, 199
 Concepts, 52-5, 71
 Consultative Committee (B. of E.), 24
 Cooking, 93, 100, 176
 Corrections, of pupils' performance, 127; of pupils' work, 113
 Coster, Geraldine, 256
 Craft, 87, 90, 93, 100, 115, 130, 139, 225, 230. (*See also* Handicraft)
 Creative activities and appreciation, 197
 Creativity and technique, 1, 2, 6, 30-1, 33-5, 91-2, 100-5, 138, 199, 200, 294
 Cubberley, Prof. Ellwood P., 267
 Curriculum, 24-5, 84-7

 DALTON Laboratory Plan, 182, 222-4, 227
 Dancing, 42, 93, 106, 122, 130, 134
 Davies, Sir Walford, 193
 Debussy, Claude A., 203
 Demonstration, 122-4
 Description, 147, 157-61
 Development, 242-3
 Dewey, J., and E., 223
Diarmid and Grama, 1
 Discipline, 78, 260, 268 *et seq.*
 Discussion, 163, 183-5, 227; groups, 148, 185
 Douglas Haig, 147
 Doyle, Sir Francis, 213

- Dramatisation, 62, 66, 104, 111, 148, 197, 223-4
 Drinkwater, John, 216-7, 243
- EARLE, F. M., 280
 Education, and philosophy, 6, 27; and social order, 5, 23; 1944 Act, 6, 279
Education: Its Data and First Principles, 37, 200, 255, 257, 269
Education on the Dalton Plan, 222
 Educutions, 56-60, 63
 Edwardes, Tickner, 160
 Elgar, Sir Edward, 1, 104, 203
 Epidiascope, 166
 Examinations, 24, 87, 141, 200
 Experience and learning, 15-17, 26, 30-2, 39-42, 50, 55, 61, 71, 85, 88, 141, 144-5, 156, 257-61
 Explanation, 123, 161-3
- FACULTIES of mind, 26
 Fatigue, 128, 129
 Films, 17, 71, 144-6, 170-3, 232. (See also Visual Aids)
Forecasting Teaching Ability, 278
 Formal steps (Herbartian), 95-8
- GALTONIAN school, 18
 Generalisation, 52-5, 141-2; teaching step, 95, 149, 154-5, 241
 Geography, 23, 53, 69, 87, 143, 169, 223, 227
 Gibson, 204
 Gielgud, John 216
 Grading, of practice, 111, 134, 137; of teaching content, 25, 134
 Grahame, Kenneth, 203
 Grainger, Percy, 207
 Grammar, 54, 199
 Graves, Robert, 105
Great Contemporaries, 147
 Grierson, John, 145
 Group teaching methods, 108, 226-8
- HABITS, 31, 33-5, 70-1, 75, 99, 102, 109, 120, 133
 Haldane, Prof. J. B. S., 146, 161
Handbook of Suggestions (B. of E.), 5
- Handicraft, 37, 42, 67, 90, 100, 130, 225 (See also Craft)
 Hardy, Thomas, 105
 Harrison, Maurice, 279
 Hay, Will, 124
 Health education, 36, 42, 86, 137-8, 277
 Helmholtz, 179
 Helvétius, 18
 Herbart, J. F., 95
 Heredity, 8, 18
 History, 3, 53, 69, 71, 83, 87, 90, 143, 169, 181, 223, 239
 Holmes, O. W., 250
 Hughes, A. G., and Hughes, E. H., 12-13, 37, 145-6, 255
Human Speech, 60
 Humour, 285
- ILLUMINATION, 179
 Imagery, 52, 71, 108, 144, 159
 Imitation, 2, 11, 13-15, 29, 43, 91, 120, 196, 289
 Individual differences, 19, 28, 31, 58, 80-2, 111
 Individual work methods, 225-6. (See also Dalton Laboratory Plan)
Industry and Society, 181
 Initiative, 283
 Instincts, 10-13, 66-7
 Intelligence, 19; and understanding, 55-60
 Interest and mental development, 62-9
 Introduction, 240-2
- KNITTING, 42, 93, 101
 Knowledge, development of, 94, 140-190
- LANGUAGE, and mental development, 60-2; origins of, 60
 Laughton, Charles, 51
 Lawrence of Arabia, 147
 Leadership, 281
Learning and Teaching, 12-13, 37, 145-6, 255
 Learning, by trial, 16; by trial and error (success), 43-4
 Lennox, 205
 Lindsay, Vachel, 206

- Literacy, 86
- Literature, 20, 53, 62, 87, 93-4, 100, 192, 200, 219, 228, 250-2, 261. (*See also Poetry*)
- MACBETH, 205
- Mannerisms, 164, 165
- Mannin, Miss Ethel, 255
- Manu-motor imagery, 108
- Maps and diagrams, 167-170. (*See also Visual Aids*)
- Marshal Foch, 147
- Mathematics, 20, 53-4, 70-1, 82, 87, 89, 90, 93, 144, 170
- McDougall, H., 256
- Memory, 26, 69-76
- Mental and Scholastic Tests*, 108
- Menuhin, Yehudi, 117
- Mercutio, 3
- Method-unit, 97, 235, 239-40
- Montessorians, 222
- Moral Instruction, 257-71
- Mozart, 45, 207, 213
- Muscular Skills, development of, 116 *et seq.*
- Muscular system, 37
- Music, 42, 87, 93, 101, 106, 114, 125, 192, 197, 200-1, 203, 207-9, 211-20, 223
- NARRATION, 147, 157-61
- Needlecraft, 42, 101
- Neill, A. S., 255
- Nervous system, 9, 37-9, 47-8
- Neuro-muscular development, 39-45
- Newbolt, Sir Henry, 204, 211
- Number relationships, 23, 86, 93, 99, 101-2. (*See also Arithmetic*)
- Nunn, Sir T. Percy, 37, 200, 255, 257, 260, 269
- OBSERVATION, of teaching, 91-2
- Oral teaching, 147, 156-65, 228
- PAGET, Sir Richard, 60
- Parents and Children*, 27
- Parkhurst, Helen, 222
- Pear, Prof. T. H., 164, 168
- Percepts, 50-3, 63, 142
- Performance, learner's, 44, 125-7; phase of Presentation, 120, 124-6; teacher's, 121-2, 129
- Permanence of learning, 69-76
- Persistence, 283
- Personality, teacher's, 279-88
- Physical training, 42, 93, 130, 134, 225, 228, 230
- Pictures, 165-7. (*See also Visual Aids*)
- Play, 11, 13, 65, 282
- Pleasure-pain principle, 258-9
- Poetry, 88, 94-5, 191, 201-7, 210-20
- Poincaré, 179
- Potentialities, children's, 5, 7 *et seq.*
- Potter, Beatrix, 158
- Practice, 44, 106; teaching step, 107, 110-3, 128-34, 241
- Praise and blame, 262-3
- Preparation, teacher's, 208-10, 231-52; teaching step, 95, 105, 107, 118-20, 149, 150, 210-4, 240-1
- Presentation, teaching step, 95, 107-11, 120-7, 149, 152-4, 214-9, 225, 241
- Private study, 148, 156, 180-3
- Problem solving, 174-80
- Project method, 223, 227
- Psycho-Analysis, 73, 256
- Psycho-Analysis for Normal People*, 256
- Punishment, 68, 263-7
- Pupils, as a class, 78-9; as individuals, 79-82
- Purcell, 208, 213
- QUESTIONING, 92, 123, 185-90, 241, 290
- Quiz, 68, 90
- READING, 17, 33, 93, 99, 101-2, 107, 114, 225-7
- Reasoning, 26, 59
- Recapitulation theory, 174-5
- Recitation, 191
- Reed, William H., 1
- Reflexes, 36-41
- Religion, 87, 93, 261
- Reminiscence and Obliviscence*, 75
- Repetition, 14, 71
- Rewards, 263
- Romeo, 3

Rousseau, J. J., 255
 Ruskin, 210
 Russell, Bertrand, 255

SAINT-SAENS, 203
 Samuel, J. W., 282
 Sandiford, Peter, 131
Schools of To-morrow, 223
 Schumann, 203
 Science, 23, 53-4, 66, 71, 82-3, 87, 90, 93-4,
 148, 160, 168-9, 176, 178, 182, 230, 237-
 9, 242, 249-50, 261
Science and Everyday Life, 146, 161
 Self-criticism, teacher's, 288-91
 Senses, and the mind, 46-52, 142
 Sensory discrimination, 48
 Shakespeare, 3, 205, 209, 212
 Shaw, G. B., 27, 121
 Shearer, Norma, 50
 Skeletal system, 37
 Skills, 31-4, 42-5, 70, 94, 225, 236, 241;
 acquisition of, 94, 99 *et seq.*; progress
 in learning, 131-4. (*See also* Muscular
 skills, development of)
 Sociability, 284, 293
 Spearman, Prof. C., 56-7
 Speech, teacher's, 164, 195, 273, 289
 Spelling, 23, 32-3, 68-71, 99, 102, 108-9
 Spencer, F. H., 181
 Spurgeon, C. H., 253
Straight and Crooked Thinking, 183
 Strauss, 208
 Study, 173-85, 226
 Sublimation, 67
 Suggestion, 72, 153, 194-5, 272-4, 276
 Swimming, 106, 125, 138, 127, 131
 Syllabuses, 82-4

TABLES, arithmetical, 69, 71, 102, 106, 110,
 112

Taste, development of, 94, 191-220
 Teacher-pupil relationship, 6, 29, 30, 91,
 135-6, 153, 162, 261-2, 270-7, 281-4,
 286-7
Teachers Made and Marred, 279
 Teaching, content of, 6, 24-6, 30-1, 82-90,
 203-8
 Temperament, 9, 10, 20, 26, 114
 Tempo, and rhythm, 129-30, teaching,
 122-3; working, 122, 128
 Tennant, E. W., 204
The Loom of Youth, 201
The Lore of the Honey Bee, 160
The Psychology of Effective Speaking, 164,
 184
The Young Delinquent, 256
 Thouless, R. H., 183
 Time-table, 97, 150, 223-4, 239, 276
 Types of learning, 92-5
 Typewriting, 131-3

VERSE making, 111, 199
 Visual aids, 17, 88, 90, 147, 165-73, 291.
 (*See also* Films)

WALLAS, Graham, 179
 Walter de la Mare, 97, 203, 204, 206, 217
 Watts, A. F., 60, 160
 Waugh, Alec, 201
Whitaker's Almanack, 182
 Whitehead, Prof. A. N., 142
 Whole and part learning, 75
 Will to live, 9, 12, 15, 22
 Wood, Sir Henry, 130
 Woof, Edward Rowsby, 121
 Wordsworth, 206
 Writing, 32, 43, 93, 101, 119, 134, 199, 225
 Written teaching notes, 231-2, 238, 245-
 52

